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ABSTRACT

This handbook has been prepared to eliminate some of the gap of manpower information at the local level by assisting local manpower experts in the collection of manpower data. Arranged in the order in which steps are taken in an actual survey, contents of the handbook progress from survey work preceding the fieldwork phase to work taking place during the fieldwork phase and finally to the post-fieldwork phase. In addition to a general discussion of the steps, the handbook discusses: (1) concepts, terms, and definitions conventionally employed in manpower analysis, (2) the information to be obtained in a survey, (3) selection of the appropriate type of survey, (4) selection of the data collection instrument, (5) elements of the sampling method, and (6) data processing and evaluation of survey accuracy. Numerous examples augment the text, and several sample data collection instruments are appended. (SB)

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Methods for Manpower Analysis No. 5

Handbook for Community Manpower Surveys

J. E. Morton

THE W.E. UPJOHN INSTITUTE FOR EMPLOYMENT RESEARCH ESTABLISHED 1945

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HANDBOOK FOR COMMUNITY MANPOWER SURVEYS

By

J. E. MORTON

October 1972

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His most recent publications are *Analytical Potential of the Current Population Survey for Manpower and Employment Research, On Manpower Forecasting,* and *On the Evolution of Manpower Statistics.*

Dr. Morton is a member of Phi Beta Kappa and a Fellow of the Royal Statistical Society, London. He is listed in *Who's Who in the East,* in the *International Yearbook and Statesmen's Who's Who,* and in *American Men of Science.*

Foreword

Although there is an abundance of data in the United States regularly utilized to shed light on manpower problems, it is generally recognized that among the remaining manpower information gaps there is a deficiency in local-level data. The deficiency is all the more notable in view of the recent assumption of manpower advisory functions by state and local governments. By mid-1972, with financial support from the U.S. Department of Labor's Manpower Administration and with coordinating, administrative, and technical support from special manpower units established by the National Governors' Conference and the U.S. Conference of Mayors, manpower advisers and planners were functioning in the offices of the governors of all 50 states and in the offices of the mayors of some 140 cities in all regions of the country. The staffs of these state and local manpower experts in mid-1972 numbered about 1,100. For these experts and their staffs, local manpower data are of primary importance.

It is for the purpose of assisting in filling at least some of the local-data manpower information gap that the Upjohn Institute is pleased to publish this report. The Department of Labor, in its efforts to decentralize manpower operations, is engaged in a major effort to disaggregate labor market area or SMSA (Standard Metropolitan Statistical Area) data to the component city, county, and even neighborhood levels. This will admittedly be a long process; and even when it is completed, manpower experts working at the local level will need to generate data peculiar to local labor markets and will need, also, to develop stronger competence in the interpretation and utilization of local manpower information. This publication, hopefully, will provide a guide for these important functions at the local government level.

In publishing this handbook, the Institute gratefully acknowledges the encouragement and cooperation of Davis A. Portner, Director, Office of Planning and Evaluation of the U.S. Department of Labor's Manpower Administration, whose careful reading of the manuscript helped to improve it. Grateful acknowledgment is also due the manpower units of the Governors' Conference and the Conference of Mayors.

Ben S. Stephansky
Associate Director

Washington, D.C.
September 1972

Preface

Thankful acknowledgment is due, in addition to that owed Dr. Ben S. Stephansky and other members of the Upjohn Institute staff, to the staffs of the Census Bureau, the U.S. Departments of Labor and Health, Education, and Welfare, the United Nations, and the International Labour Office.

The statements of facts and views expressed in this handbook are my sole responsibility; they do not necessarily represent positions of the W. E. Upjohn Institute for Employment Research.

J. E. Morton

Washington, D.C.
July 1972

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I. Introduction

An important turning point in the nation's manpower development effort was the federal government's policy of decentralization of manpower training and related services, formulated in 1968 and carried out in several steps since 1969. While further decentralization may be legislated—along the lines of the vetoed 1970 Manpower Training Act —, the steps already taken have allocated new and important manpower roles to state and local jurisdictions. The Emergency Employment Act of 1971 is the most recent example of reliance for effective administration upon governors, mayors, and other local officials.

Decentralization has stimulated a growing interest, not only in local problems of manpower administration but also in local manpower research. The wealth of available aggregate manpower data and even regional, industrial, or other special manpower studies often do not deal with the particular features of local labor markets. Thus, in addition to the macro data, there is often a need for securing local detailed empirical information; and increasingly, the local manpower survey in one or another form is being employed to come by such information.

At the outset it should be realized that the conduct of a local manpower survey can be regarded from two different points of view:

1. The survey may be a partial one, concerned with only a part of the population under consideration. In this case we speak about a sample survey. It involves two major categories of problems: (a) the selection of the sample and (b) based on the sample, the estimation of the population characteristics. These two categories of problems are the subjects of the theory of sample selection and the theory of estimation. They are both method-oriented and intimately related to probability theory and mathematical statistics. It is here assumed that if and where problems of sample selection and estimation arise, the services of an experienced sampling statistician will be retained. He will take responsibility for the sample selection and the estimation procedure.

2. On the other hand, the survey may be of the census type based upon complete enumeration. In this instance no particular background in probability theory and mathematical statistics is required. It should be added that whether or not the survey is a partial one or a census-type survey, the conduct of the survey will involve a host of questions peculiar to the subject matter of the survey. Thus, an intimate knowledge of the specific subject matter and its analytical aspects is presupposed, as would be the case in any research situation.

The specific subject matter here is manpower; it is to the field of manpower, and not to technical sampling problems, that this handbook is primarily directed. But how is a handbook like this one to be used?

The contents of this handbook are arranged more or less in the order in which steps are taken in an actual survey, progressing from the survey work preceding the fieldwork phase to work taking place during the fieldwork phase and finally to the post-fieldwork phase. To assist the survey director, these steps are introduced in Chapter III along with a discussion of certain concepts, terms, and definitions conventionally employed in manpower analysis in the United States. A discussion of a number of additional manpower concepts is also presented to make him aware of their possible advantages. By identifying with and using concepts favored in the United States, the survey director would of course obtain results comparable with existing national data; by taking into account the definitional differences between concepts used in the United States and others, he would be able to choose wisely the survey concepts most suitable for his purpose.

A step which cannot be taken too early, treated in Chapter IV, is the description or specification of the information to be obtained by the survey. To bring to the survey staff present specification practices, the concept of table shells and dummy tables is developed. The technique of making table shells is explained, and sample dummy tables based on actual manpower practice are provided.

Once specification of the information to be obtained by the survey has been settled, the question of enumeration units will be raised. This question is discussed in Chapter V. The primary choice here will be between two different types of enumeration units—the "household" and the "establishment." The difference between the two and their effect on survey planning are examined in detail, as well as the significance of the use of "establishment" as a unit in the several manpower categories.

Chapter VI of the handbook is devoted to the pivotal problem of survey instruments—the questionnaire and the interview. Their purpose and the functional differences between the two are clarified. Because of lack of theory in this field, rules of thumb are presented; and sample questionnaires, taken from actual manpower surveys to illustrate problems of questionnaire construction, are printed in entirety in the appendixes. Attention is drawn to the use of pretests and to the importance of assuring high and uniform

interviewing standards through proper instruction of the interviewing staff. The coding procedure is described, and coding systems are sketched in some detail. For example, the Census Industry Code and Occupation Classification are added as exhibits.

Chapter VII on "Sampling and the Survey Staff" schematically reviews for the staff the elements of sampling method, with some emphasis on both the selection and estimation procedure. This section of the handbook thus helps to give the survey staff an idea of the services to expect from the sampling expert and of the way in which the field staff should support the sampling expert. Furthermore, it gives the survey director essential information for an understanding of the basic problems faced by the sampling consultant so that he may communicate with the consultant intelligently. Since it is customary to have the field staff perform auxiliary activities which provide the basis for technical procedures, such as prelisting or translation of a household sample into one of the adult population, some of these activities are here explained and described. Forms to be executed by the field staff are presented in sufficient detail.

The final chapter is an examination of the post-fieldwork phase, including an evaluation of the accuracy of the survey results. As soon as the completed survey schedules are returned, they must be edited because they cannot be assumed to be either complete or internally consistent. The primary objective of editing is to avoid errors in interpreting answers to the questionnaire; therefore, various ways of avoiding errors are listed and described. Methods are suggested to cope with one particularly annoying error, the "missing item." Throughout, emphasis is laid on orderly procedures for handling problem questionnaires and coded problem cards.

With reference to the evaluation of survey accuracy, the survey staff is expressly cautioned that it is good survey practice to give, in addition to the survey results, some indication of the degree of accuracy obtained and of the possible effects of nonsampling errors. Nonsampling errors may be divided into "nonresponse" and "other" errors. These two kinds of errors are discussed, together with measures to contend with them. Chapter VIII closes with a reference to statistical quality control and with an admonition to record and describe likely sources of bias.

It will be advantageous if the survey director and his staff will study this handbook with the following uses in mind:

—As a checklist of important survey steps to guard against overlooking any of them.

—As a catalog of answers to questions on "how to do it."

—As a collection of readily available survey resource material.

—As a stimulus to thought on survey-related problems.

II. Survey Research: History and Perspective

No single, simple, and exhaustive definition of survey research can be given; such a definition, if available at all, varies with the particular object and field to be surveyed.[1] Nevertheless, survey research, like other scientific research, has developed some technical principles of observation, of detection of regularities, and of formulation of hypotheses.[2]

In the practice of economists and the behavioral scientists, it is now widely held that survey research is synonymous with observational research in general.[3] Such a broad interpretation accommodates, of course, a great many kinds of survey operations, but is not too helpful in delineating the specific methods, techniques, and instrumentalities of importance to the student of specific survey procedures and problems.

A pragmatic description of the term "survey research and method," at it appears today in its application in the social sciences, would point to the interdisciplinary character of survey research; and accordingly: (1) to its eclecticism in scope and methods; (2) to its heavy, but not exclusive, reliance on the description of attitude and opinion variables and attributes, based on the interview and questionnaire method of information collection; (3) to its dependence on specific analytic procedures of its own for the analysis of empirical findings in order to yield evidence on the relationship of the "dependent" to the "independent" variables or "causes"—in other words, in order to explain findings.

In contrast with the broad interpretation of survey research offered by the empirical arms of the social and behavioral sciences, there is the narrower interpretation of the survey as a data-collection instrument, based on personal interview and questionnaire, using personal contact, mail, or similar means for obtaining the information. The great appeal of the survey, when defined as an instrument of information collection, lies in its apparent simplicity and directness and in its flexibility and seeming ease of operation. Both promise the researcher a great deal of independence and an opportunity to apply this information-producing instrument to nearly any plausible task at hand. But these very virtues are also at the root of serious problems confronting those engaged in gathering survey information. The seeming simplicity of the tool and of its application only hides difficult and complex problems which face those who intend to use surveys to describe socioeconomic situations or to disentangle involved interrelationships among a number of behavioral variables.

Survey research, because of its relatively simple and flexible character, became a favorite vehicle of social scientists for the gathering of observational information early in the period of expanding "factualism" and empiricism. Therefore, the roots of survey techniques can be traced farther back than those of the theory and design of probability samples and experiments; in other words, they are earlier than the roots of the statistical method proper and its application to the gathering and interpretation of quantitative information. An absence in survey methods of a formal, well-developed, elegant model, such as that provided in sampling theory, accounts for the lack of a theory and for the use of unsophisticated case-oriented descriptive illustrations in much of the didactic literature on survey methods and techniques.

The early censuses ("complete" enumerations), as expected, preceded modern sampling surveys, not only because the analytical tools which stimulated the use of present sampling techniques were not yet available, but also because the partial canvass was considered a substitute (not a very desirable one) for the safer and generally preferred complete enumeration.

Since we are not interested here in surveys in general, but in manpower surveys in particular, it might be of interest within the present context to look quickly at the broad outlines of the evolution of manpower surveys and to find that, among the early surveys in the general fields of the socioeconomic sciences, social-policy-oriented and manpower-related surveys were prominent.

The French social reformer and erstwhile professor of metallurgy, Pierre Guillaume Frédéric le Play (1806-1882), is usually credited with having established the social survey, which he referred to as the monographic method, as a means for studying family budgets and standards of living —an undertaking which profoundly influenced European sociology from 1860 to the 1940's. This monographic method reflected, no doubt, the systematic reports of field trips by students of the Ecole de Mines in Paris, where le Play taught; accordingly, the emphasis was on countable items—a great step toward factualism in the social sciences.

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[1]See, e.g., George Katona, *et al., Contributions of Survey Methods to Economics* (New York: Columbia University, 1954); and Edward A. Suchman, "The Survey Method Applied to Public Health and Medicine," in Charles Y. Glock, ed., *Survey Research in the Social Sciences* (New York: Russell Sage Foundation, 1967).

[2]Herbert Hyman, *Survey Design and Analysis* (New York: The Free Press, 1955), p. 8.

[3]Herman C. Selvyn, "Survey Analysis," *International Encyclopedia of the Social Sciences* (New York: Macmillan and The Free Press, 1967), Vol. 15, p. 4114.

The famous statistician and former astronomer and director of the Royal Observatory at Brussels, Adolphe Quételet (1796-1874), endeavored to underpin contemporary social science with a factual and quantitative foundation. Later the German statistician and economist, Ernst Engel (1821-1896), formulated the law bearing his name, which is based on the generalization from earlier expenditure surveys with regard to the relationship between consumer income levels and expenditures for food, clothing, and other consumption categories.

The best known pioneer survey is probably the one conducted by the English statistician and reformer, Charles Booth (1840-1916), who was interested in poverty problems as they were emerging on London's East Side. His monumental social survey was published in 17 volumes under the title *Life and Labour of the People in London (1892-1903)*. Along the same line of inquiry, Arthur Bowley directed a comparative survey of five industrial towns in England and in 1915 published, together with A. R. Burnett-Hurst, *Livelihood and Poverty*.

In the United States a prominent early social survey was sponsored by the Russell Sage Foundation, under the directorship of Paul U. Kellog, and published in six volumes (1909-1914) as *The Pittsburgh Survey;* it describes and analyzes the effect of urban life on the steelworker. An upsurge in the survey movement ensued; Eaton and Harrison's *Bibliography of Social Surveys* lists over 2,700 individual surveys up to 1928.

Although the basis for probability sampling had been laid at the beginning of the 19th century, the first application of probability theory schemes to an actual sample design was found nearly a hundred years later when Bowley sampled a list of bonds and their interest rates in 1906. It was A. N. Kier, a Norwegian statistician, who promoted the rapid and impressive expansion of the application of probability sampling during the 20th century by having sampling, or the representative method as it was referred to, placed on the agenda of the 1895 meeting of the International Statistical Institute.

Since the early survey designer of partial canvasses generally had no sampling theory on which to rely, he faced numerous survey problems. These he had to solve in some way or another in order to reach in some viable, if not rigorous, fashion conclusions based on his collected empirical data. Even today, when the analytical toolkit of the probability sampler is most impressive, it must be recognized that there are survey problems for which there exists neither model nor theory. Errors are no less important; nor is their effect on survey results less disturbing than usually.

The basic concern of the sampling statistician is with problems of "statistical" estimation and with highly formalized tests of hypotheses.[4] He approaches his problems via mathematics. The survey specialist, on the other hand, approaches his subject (about which much less is known than about sampling theory) not so much from the frame of reference of the scientist as from the perspective of the artist.

Manpower surveys, which are of primary interest here, embrace a wide area of techniques of measurement and attempt to uncover patterns and regularities, conforming to the corresponding interdisciplinary character of manpower analysis. The designer of a manpower survey would be wise to relegate problems of sampling theory and technique to a sampling statistician, but he must face many survey problems himself. Whether he deals with an enumeration of the complete population or with only a partial canvass, he must solve these distinct survey problems which are here divided, for the sake of presentation, into the following steps or phases:

—Conceptual foundation to support the survey plan

—Further taxonomic concepts, topics, and tabulation plan

—Choice of survey vehicle and descriptors

—Questionnaire and fieldwork phase

—Post-fieldwork phase and evaluation of the accuracy of results

[4]John W. Tukey, "The Future of Data Analysis," *Annals of Mathematical Statistics,* Vol. 33 (1962), pp. 1-67.

III. Conceptual Foundations To Support the Survey Plan

First, let us have a brief look at the meaning of the term "manpower" itself as it is used today to find out what kind of survey would be useful.[1] The word "manpower" is borrowed from everyday language and is not clearly defined: it overlaps with several other concepts. Since the manpower survey designer must choose concepts that can be readily quantified (that is, clearly operational concepts), the range of possibilities open to him shrinks greatly. Referring to the *International Encyclopedia of the Social Sciences*, we find that there are several concepts and terms which try to express manpower-related content; accordingly, "manpower" is the broadest of several similar categories, including not only the actual working force but, beyond this, the "potential or maximum available working force which might come into being in accordance with economic, social, or political considerations." "Working force," in turn, is "more or less" that portion of the population which is "economically active."[2]

On closer inspection, it turns out that this relatively well-defined conceptual kernel poses problems of its own since it must be regarded "in terms of the organization of work characteristics for the culture." In general analytical use the term "working force" excludes the services of housewives and school children. This causes distortions, for example, in an economy of subsistence agriculture.

A still different concept is that of "human capital," a term created analogous to other sources of income—the yield of manpower as a factor of production. This way of approaching the problem is closely related to considerations of how to develop manpower. In other words, it also concerns questions of how to improve manpower's acquired skills through schooling, training, or education—that is, through activities which can be evaluated in terms of project investment appraisal.

For each objective of analysis there seem to be a different concept and a different definition of manpower. Each concept and each definition has its own problems, assumptions, and idiosyncrasies. Even the relatively clear and simple definition of "working force" must be understood and interpreted from the perspective of the predominant economic climate in relation to the particular social structure. As summarized in the previously mentioned article in the *International Encyclopedia of the Social Sciences*, "the concept of working force underlying statistical measurement is an artifact created to serve purposes of social analysis, and can be defined only in terms of economic and social structure."

It may, therefore, be tempting for the survey designer to develop and construct his own tailormade manpower concepts. For obvious reasons, however, the number of manpower concepts and definitions in use must be restricted: first, to enable the survey designer to fit his own survey results into the broader framework of other comparable data or to relate them to benchmarks; second, to prevent his producing a unique case study which hardly lends itself to generalization or validation within an existing wider frame.

The survey designer should be aware of existing conventions concerning manpower concepts and definitions, and he should attempt to adhere to them as closely as possible. Therefore, in discussing the details of survey steps, we shall indicate, if feasible, where such conventions exist and what they are.

But at this point it seems appropriate to discuss two other cogent manpower concepts based on data-collection and measurement procedures. They are the concepts of "labor force" and the "gainfully employed." At one time the second of the two concepts predominated; nowadays the convention in this and many other countries favors the first. In this country the labor force is defined as all persons who either have jobs or are seeking work.

A problem arises from the necessity to classify an individual's manpower characteristics (e.g., whether working, seeking work, or not working and not seeking work) at some specified time or during a stated reference period. If an individual's pattern of activity (working or seeking work) or inactivity (not working and not seeking work) remains stable over time, there would be little practical difference between the application of the two concepts. But if an individual's pattern of activity or inactivity is less fixed, the length of the reference period has a greater influence on his taxonomic classification. The present convention in the United States calls for a reference period of one week.

[1]This includes, in the practice of the International Labour Organisation, ". . . data which, in the ILO terminology, are known as manpower statistics and cover essentially statistics of the labour force, of employment, of unemployment and of underemployment." *Activities and Programmes of the International Labour Organisation . . .* E/CN. 9/256 (1971), p. 2.

[2]A. J. Jaffe, "Labour Force," *International Encyclopedia of the Social Sciences,* Vol. 8, 1967, p. 469.

Looking at the assignment of the reference period as a sample of time, it would seem that an optimum solution would lie in the direction of frequent surveys, each using a short reference period. With a reference period as long, for instance, as one year, it is difficult for the respondent to furnish adequate answers, especially if the questions are specific, calling, for example, for the number of hours worked on various jobs. On the other hand, if the period is less than one year, seasonal work patterns may escape proper classification altogether. For the same reason, classification reflecting atypical and temporary situations is more likely if the reference period is so short as to be influenced by intermittent stretches of activity and inactivity.

Since a person who was active as well as inactive during a reference period is classified as active, the longer reference period is likely to understate the inactive population. The discrepancy may be quite sizable. For example, in the United States in 1956, 67.5 million were found in the active population based on 12 monthly surveys with a one-week reference period. A corresponding estimate of the total labor force for the entire year of 1956 results in a figure of slightly more than 75.9 million.

The discrepancy between long and short reference periods lies at the heart of the difference between two approaches toward measurement of economically active populations: the "gainful worker" and "labor force" approaches. According to the gainful worker approach, the key idea is that a person plays a stable economic role as a breadwinner and that this role seems to be more or less independent of the actual activity in which the person may engage at any given time. In other words, this is the case which is allied to a very long and extended reference period. Each person's occupation is thus ascertained, and those whose answers fall within the definition of "gainful worker" are then included in the economically active population. This concept can be translated into questionnaire language in the form of simple questions and instructions, but it becomes vague and indefinite when a person's occupational role isn't definite, such as the roles of seasonal or intermittent workers, of students who are being trained for a particular occupation, or of retired workers. Where attempts have been made to clarify such situations, additional and much more complex questions were introduced, aiming at "usual" status. (An example is the Philippine census of 1948, which attempted identification on the basis of detailed instructions.) Despite these difficulties, the gainful worker approach thus defined is much less influenced by atypical and accidental factors operating at the time of enumeration or during a shorter reference period than is the labor force approach.

The labor force approach attempts to identify the economically active population primarily on the basis of a person's activity during a very short reference period. Thus, a person is classified according to whether, and in what occupation, he is employed or seeking employment during that relatively short period of time without regard to his usual activities or to his ideas about his occupation. This concept, now the dominant one in the United States, is of relatively recent origin, beginning with the 1940 census. Classification undertaken according to activity during such a brief reference period requires only objective procedures in ascertaining the respondent's answers, and it is relatively free from memory bias.

In summary, the gainful worker approach, properly defined, would seem to be preferable to the labor force approach, inasmuch as it does not necessitate complex survey questions and instructions, and inasmuch as the results are not so susceptible to temporary circumstances prevalent during the reference period. But this approach suffers from three drawbacks:

1. Classification is difficult when people (e.g., seasonal workers or those performing in part gainful and in part other work, the retired, and particularly the unemployed) do not fall clearly into a single, well-defined occupational category.
2. The survey results cannot be related in this case to a specific time period: they are not suitable for use as benchmarks or for comparison with other statistics pertaining to a specific point in time.
3. Elaborate instructions must be provided to ensure precise and objective coverage of the many peripheral groups.

As the effort towards specificity and clarity grows, so does the complexity of this approach. Nevertheless, its relative lack of sensitivity to the impact of transitory and apparently random factors would recommend it for use in social and economic description and analysis of populations.

The labor force approach escapes some of the weaknesses of the gainful worker approach, but it may reflect uncharacteristic and unrepresentative circumstances prevailing during the reference period. As the number of survey waves increases, this disadvantage of the labor force approach declines in importance, but it becomes serious when the time lapse between surveys is long or when a one-time survey is used.

Whichever of the two approaches towards measuring the economically active population is chosen, rules must be developed and accepted concerning the inclusion and exclusion of some groups whose characteristics may be ambiguous so that it will be possible to arrive at a simple and objective decision as to the category in which they should be placed.

The term "labor force," as used in the United States, includes two major segments: the employed and the unemployed. Counted as unemployed are all those civilians who had no employment during the reference week, who were available for work, and who had engaged in specific job-

seeking activities during the preceding four weeks. Jobseeking activities are:

—Registering at a public or private employment office

—Meeting with prospective employers

—Checking with friends or relatives

—Placing or answering advertisements

—Writing letters of application

—Being on a union or professional register

—Waiting to be called back to a job

—Waiting to report to a new wage or salary job scheduled to start within the following 30 days

Persons who would have been looking for work except for the belief that no work was available—the so-called discouraged workers—are not counted as unemployed. They are classified "not in the labor force."

The other segment, the employed, includes all persons who did any work at all for wage or profit during the reference week, or who worked 15 hours or more as unpaid family workers on a farm or in a business operated by a family member, and all those who were not working but who had jobs or a business from which they were temporarily absent because of illness, bad weather, vacation, labor-management disputes, or because they were taking time off for personal reasons. Excluded, however, are those whose only activity consisted of work around the house (such as homemaking and painting or repairing own home) and those who volunteered work for religious, charitable, and similar organizations.

The labor force, then, consists of persons who are available to supply labor for the production of economic goods and services; hence, it includes all persons who either have jobs or are seeking jobs. The labor force is often called "the economically active population." The concept of members of the labor force, however, is not a wholly unambiguous one. Questions arise as to the inclusion or exclusion of unpaid family workers, persons too young to be considered members of the labor force, inmates of institutions, members of the Armed Forces, dual jobholders, and others whose status with respect to the labor force is debatable.

We usually understand the term "unpaid family workers" to apply to persons who work without pay for a minimum amount of time in an economic enterprise operated by any member of the household. All such persons should be included in the labor force under the category of unpaid family workers; if they were excluded, the number of workers engaged in agriculture, especially in places where a family farm system is common, might be grossly understated. The practical problem in the enumeration of such workers is: What exactly is the type of work that contributes to the economic enterprise, and how much work is required to make the person a part of the labor force? The first question is almost impossible to answer, especially for farm households; the second has been answered in this country by setting a minimum of 15 hours of work as the standard for inclusion of a family worker in the labor force. The standard is, of necessity, arbitrary; it varies from country to country. In Japan the required amount is only one hour.

In view of this variable treatment of unpaid family workers, the United Nations Population Commission has recommended (see *Population Studies No. 9*, page 8) that the following be included in the group of unpaid family workers:

1. Persons who assist without pay a household member other than the household head in the work of the economic enterprise.

2. Persons who assist without pay another member of the household in an enterprise, the operation of which does not constitute that person's primary occupation.

3. Household members not related to the household head, such as friends, who assist in the family enterprise without receiving pay.

The real problem, of course, is how to ascertain the various characteristics and how to translate them from the conceptual frame into the operational reality of a survey.

Another aspect on which agreement must be reached is the question of what constitutes working age, and, in particular, what is the minimum age which should have been attained by a person in order to justify his inclusion in the inquiry. Not all countries apply an age limit. Examples are Czechoslovakia, France, Norway, and Switzerland. In the United States the minimum age is now 16 years, having been raised from 14 years in 1967 on the grounds "that youngsters 14 and 15 years of age are barred from most occupations under the child labor laws." This, of course, makes it impossible to determine how many children below the legal minimum age are actually engaged in work.

Inmates of penal or mental institutions, homes for the aged, and similar institutions are excluded from the economically active population even though they may produce goods or services of economic value and receive wages within the institution. It is argued that these inmates are, for the most part, charges on the social body, and that their production usually only partially offsets the cost of institutionalization. Also, they are not usually free to work outside the institution. Much, therefore, depends on the definition of "institution." In the United States, institutions are "penal and mental institutions, and homes for the aged, infirm, and needy."

As to the question of whether or not to include members of the Armed Forces in the economically active part of the population, it has been general practice to consider military service as work for pay, making it an economically relevant activity and military personnel an integral part of the labor

force. In this country, Armed Forces are excluded only if the "civilian" labor force is being discussed. The term "Armed Forces," of course, does not include policemen and others performing police rather than military functions.

Among other groups excluded from the labor force are students, retired persons, and the voluntarily idle. Retired workers who no longer practice any economic activity whatever are prohibited under the definition from being counted as members of the labor force. If they have retired from their usual occupation but still engage, perhaps part time, in some gainful work, they should be included in the economically active population.

Also excluded from the labor force by definition are those living on independent incomes derived from rent, royalty, dividends, pensions, etc. Although they may be self-supporting, they should not be counted as economically active because they do not contribute labor to the production of economic goods and services.

Each individual must be enumerated in only one category so that the grand totals are unaffected by duplication. This raises the problem of how to deal with individuals who have dual or multiple status or activities. For instance, a person may be economically active only during a part of the reference period, or he may be engaged in one occupation during part of the reference period and in another during the remainder. The longer the reference period, the higher, obviously, the probability of unearthing such duality or multiplicity, whether simultaneous or sequential.

It is suggested in the *U.N. Handbook of Population Census Methods* (F-5, Vol. 2, p. 35) that only primary and secondary activities be distinguished, and the choice left to the respondent. This avoids, but does not really solve, the issue of whether time, income, or some other measure should be the basis for the decision. There is, of course, the possibility of constructing two complete inquiries with two separate sets of tabulations, one referring to primary and the other to secondary activities. In this country there is a system of procedures to be applied in deciding where to classify persons engaged in dual activities.

The activity, "working," is assigned highest priority and precedes all other categories. For example, when a woman reports that she was working for pay during the reference period, she is classified with the employed although she may also have been going to school or have been homemaking. The second level of precedence includes those who, although they have a job or business, are temporarily absent because of illness, vacation, or bad weather. They, too, are classified with the employed although they were not working during the reference period. The lowest level is assigned to those who, although they did not work during the reference period, engaged in some specific jobseeking activity. Such persons are classified as unemployed.

As can be seen, manpower classifications and concepts raise some rather complex and involved questions. It is no wonder, therefore, that emphasis has been placed on objectivity of measurement and definition rather than on flexibility and suitability. In general, the data producer must weigh the advantages of flexibility in analysis against the disadvantages and costs of a multipurpose statistical program yielding data adaptable to simultaneous description of the manpower situation within a system of overlapping frameworks characteristic of a plural society.

A case in point is the problem of underemployment. In developing economies, full employment has been the exception; underemployment and underutilization of labor have been the rule for quite some time. The problem of underemployment is recognized as a major one even for the United States, although it is less pronounced here than in developing countries and is limited especially to the enclaves of the household economy of subsistence farming, small and distressed industry in economically depressed areas, and more generally to the ghetto economy.

Efforts to conceptualize underemployment brought forward several different concepts, among which the following three are of particular interest because they pose different problems for the survey statistician:

1. Visible underemployment.
2. Disguised underemployment.
3. Potential underemployment.

These all demonstrate the fact that the dichotomy between full employment and underemployment is based on two extreme points on what is, in fact, an underlying continuum of varying degrees of manpower utilization, all of which merge with each other.

Visible underemployment involves persons who *involuntarily* work part time, or shorter than normal periods of time. The visibly underemployed person should therefore seek, and be prepared to accept, additional work. Of the three concepts of underemployment, this one is easiest to measure. Since visible underemployment is characterized by work for an abnormally short time, all that remains to be done is to implement the definition by deciding what should be considered abnormally short. This key measure varies, of course, from country to country. In the United States, full employment is set at 35 hours per week. Thus, anyone working less than 35 hours during the reference period of one week would be considered visibly underemployed.

However, a distinction must be made between the visibly underemployed and *voluntary* part-time workers; e.g., women with young children and students who want only a part-time job. In the United States the practice is for respondents who answered that they had worked less than 35 hours during

the reference week to state the reason for such part-time work so that those who worked for "economic" reasons may be separated from those who "wanted only part-time work."

In interpreting this definiton of underemployment, it will of course, be interesting to study its distribution over time since differences in the time patterns of less-than-fully employed workers suggest different forms of underemployment. For instance, one might differentiate between seasonal and chronic underemployment, and what might be called accidental underemployment, occurring as a consequence of climate factors (e.g., in construction) or of technical factors, such as normal breakdowns in equipment. Each different form of underemployment calls for different remedial action. This would, of course, require information from work-history types of longitudinal surveys.

Disguised underemployment is invisible. In general, this form of underemployment is associated with low earnings on one hand and less than full utilization of the worker's capacity on the other. But capacity or skill is difficult to define and even more difficult to measure. Some variables which must be considered are income and formal education. Information on education, in number of years or highest level attained, must be supplemented by an indication of a person's skill and practical experience; i.e., by intensive work-history and longitudinal data. With respect to income, a norm, or a multiplicity of such norms for various sectors of the economy, needs to be established, below which exists underemployment. Since, in many instances, only family income data are available and meaningful, the problem is not only difficult from the point of view of measurement, but also complex and highly suggestive when seen from the perspective of the interpretation and analysis of data.

Practices have, of course, developed in the United States concerning the collection of income information, but no generally accepted ways of attacking the problem of underemployment have been established. The international meeting of experts on underemployment (see International Labour Office, *Eleventh International Conference of Labour Statisticians,* IV Geneva, 1966, p. 21) recognized the complexity of the problem, concluding that the "problem . . . merits an early study."

In general, income data for surveys which include information on part-time work refer to money income without regard to income in kind. Also, this income concept is limited to regularly received income, excluding income from sale of property, from capital gains, etc. In the United States income amounts are obtained on an annual basis for the following income sources separately:

1. Wages or salary before any deductions.
2. Net income from business, from professional practice, or from owned farm.
3. Money received from social security or railroad retirement checks from the federal government.
4. Dividends, interest on savings accounts or bonds, and net income from estates and trusts.
5. Welfare payments or other public assistance.
6. Unemployment compensation and workmen's compensation.
7. Government employee pensions and veterans' payments.
8. Private pensions or annuities, alimony, and other regular contributions from persons not living in the same household.

The concept of potential underemployment seems to be even less operational at this time. Potential underemployment is characterized by normal hours of work and by an individual's "normal" income and output. The main difference between this form of underemployment and full employment is the difference in labor productivity. In other words, in this instance, underemployment exist because, although "normally" productive himself, the worker is employed in an establishment whose productivity is abnormally low. Since productivity varies greatly between different economic sectors and different enterprises, the establishment of a norm by means of which to measure this type of underemployment becomes even more complex than in the preceding two cases. Not only conceptual difficulties but also high costs of productivity studies of individual economic units are involved. Therefore, the Eleventh International Conference of Labour Statisticians just mentioned came to the conclusion that "surveys relating to individual economic units for measuring of potential underemployment are not operationally feasible." No official standards concerning the problem and its solution exist in the United States.

In summary, although underutilization presents an important concept, the usual measures of employment and unemployment cannot really contend satisfactorily with the problem of measuring and translating into operational terms employment which involves persons involuntarily working part time or shorter than normal hours of work (visible underemployment), employment which does not permit full use of a person's capacity and which results in abnormally low earnings (disguised underemployment), and employment in an enterprise with abnormally low productivity (potential underemployment).

So far, the discussion of taxonomy and definition has focused on major, or primary, manpower characteristics; i.e., on the division of the population into economically active and inactive parts and on the subsequent further division of the economically active part, the so-called labor force, into its employed and unemployed components.

Also of considerable importance to the survey researcher are two major subdivisions of the economically active population by the type of the activity in which it is engaged.

1. The activity of the unit in which the individual works.

2. The activity of the individual himself; i.e., the kind of work that he undertakes.

In classifying the unit in which the individual works, several concepts have to be considered. The "enterprise" is a suitable unit of classification based on purely financial decisions as they relate to profit and investments. The enterprise may be a corporation, a partnership, or an individual employing others or working on his own account. An enterprise, however, may own or control a number of farms, factories, or stores, which in turn are involved in different kinds of economic activity. It may not, therefore, be appropriate to classify all these activities under the enterprise unit. An example would be the activities of a large corporation engaged in the production of one or more marketable items as well as the management of many retail outlets which market these products.

However, in order to provide meaningful statistics for industries and geographic areas, and to simplify the industrial classification of multiunit firms, reporting on an establishment basis is frequently adopted. An establishment, such as a factory or store, produces goods or services; is generally at a single physical location; and is predominately engaged in one type of economic activity. Records are maintained from which reports can be prepared on employment, payroll, and value of receipts (from production, shipments, sales, and services). In some cases, however, a single physical location encompasses two or more units engaged in separate and distinct activities. In general, in such instances, each unit should be treated as a separate establishment if (1) a separate industry classification for the activities is provided for in the *Standard Industrial Classification Manual*[3] and (2) records are maintained for each unit from which reports can be prepared on employment, payroll, and value of receipts.

"Technical" and "operational" classifications are also occasionally encountered. A technical unit encompasses operations which contribute directly to a particular group of products or services. An establishment might be further subdivided (for taxonomic reasons) into several technical units with different classifications on the basis of employment or value added. The operational unit is based on the nature of the work done. Sometimes the operational activity is only peripheral or subordinate to the main activity of the establishment; e.g., maintenance or transportation departments would be subordinate to the retail sales classification of an individual store.

The final choice of taxonomic unit depends on the information available for classification. The technical or operational unit appears to have the advantage of flexibility and suitability. Classification by establishment would refer to the type of product or service rendered by the unit and could be stated in terms of branch of economic activity or, more often, in terms of industry. Using a classification by industry, a janitor cleaning floors in a department store would be listed under "commerce," while one cleaning floors in a textile mill would be listed under "manufacturing." All this seems to point toward the use of the establishment as the better compromise. It is the unit conventionally used in this country.

From a technical point of view, the important survey problem is to elicit from the respondent the kind of information needed to classify correctly and unambiguously a particular establishment. This is not an easy task. To facilitate it, generally recommended classification systems have been developed. Among these are the detailed SIC in the *Standard Industrial Classification Manual*[4] and, for the purposes relevant here, the more useful and less detailed classification by the Bureau of the Census (see Exhibit 9, pages 35-37).

Thus, the practical survey problem is to make arrangements for the proper editing of the information furnished by the respondent and for coding it in terms of the particular classification to be used. In general, surveys of communities or other smaller areas will get along with less detailed classification schemes. To facilitate coding and improve the quality of results, arrangements might be made with the state employment service to obtain a listing of establishments and their SIC codes for use in the particular survey.

Much of what was said about industry classification codes applies, *mutatis mutandis*, to the kind of work done by a respondent during the reference period (or previously performed by an unemployed person), irrespective of industry. This is referred to as "occupation," and, as in the case of industry, there exist standard occupational classifications. The most extensive and detailed in this country is the *Dictionary of Occupational Titles* (U.S. Department of Labor, 1965); more nearly applicable to the kind of survey work discussed here is the Census Bureau's Occupation Classification (see Exhibit 10, pages 38-41).

[3]Executive Office of the President, Bureau of the Budget, prepared by Office of Statistical Standards (Washington: Government Printing Office, 1967).

[4]*Ibid.*

IV. Further Taxonomic Concepts, Topics, and Tabulation Plan

On the preceding pages major manpower concepts and conventional categories were discussed. We now enter the area of less firmly established taxonomic concepts—"second priorities" so to speak—which may well turn out to be no less significant for manpower analysis than the "first priorities." In general, we shall follow suggestions made by the United Nations Conference of European Statisticians in the fall of 1965.

It would seem worthwhile to see what would happen if we supplement the labor force concept with the gainfully occupied or the "usual activity" concept. As survey waves increase in number and the intervals between them consequently become shorter and shorter, the practical importance of differences between economic activities classified in terms of reference periods of varying lengths diminishes. But when, as so often happens, a one-time survey is all that is contemplated, the difference between "economic activity" on one hand, which relates to a short reference period such as a week, and on the other hand, "usual activity," which relates to a comparatively long reference period, becomes quite pronounced. In such circumstances, "usual economic activity" lends itself to a different socioeconomic interpretation, much less affected by seasonal variations and similar temporal instabilities, and brings out the structural properties quite possibly much less affected by actual, and possibly accidental, activity during a short reference period. This concept seems to express more nearly the characteristics of an individual's "occupation" in the sense of his more or less stable functional role in society, independent of his specific activity at any given time. It would therefore seem to have merit if used for structural analysis, especially of labor force participation rates and their behavior.

If the reference period to which the "usual economic activity" concept relates were one year, the effects of most seasonal patterns would be ironed out. The concept is vague when applied to the classification of previously employed persons who are not working (such as women currently engaged in household duties), but who would like to return to work. Generally, the concept appears ill suited to the treatment of unemployment as we understand and use the term.

Various censuses taken in the 1930's and 1940's, while the concept of gainful occupation was in vogue, have experimented with this concept and have taken a different approach suggestive of some of the options available to the survey designer. The problem is particularly acute where the two components of economic activity; i.e., employment and unemployment, are to be obtained.[1]

In censuses which differentiated between the employed and the unemployed, two approaches to the problem can be found. One requested each employed person who reported himself as having gainful employment to report also whether he was actually employed on the census date. The other asked each person to report the name and address of his employer, if any, at the time of the census. This information made it possible to check results against other records, but this was a difficult operation. However, where this method could be applied, it made possible not only classification into employed and unemployed, but also considerable improvement in the quality of occupational and industrial information.

In any case, statistics for the unemployed based on usual type of activity are difficult to interpret and are not consistent with unemployment statistics derived from other sources. For such reasons, employment and unemployment concepts have been used not only to estimate the unemployed component of the "usually economically active," but also to clarify the concept of usual economic activity itself.[2]

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[1]The German census of 1939 avoided the issue altogether by instructing numerators that unemployed workers need not be identified as such because of the negligible size of unemployment in Germany at that time. Other censuses, particularly in Latin America, which similarly did not refer to the employment status, were those of Brazil (1940), El Salvador (1930), and Paraguay (1936).

[2]For example, in Greece, respondents were asked to report themselves as "usually economically active" if they were idle because of illness, layoff, or inability to find employment. Also, length of idleness and ability to work have been used as tests in this connection. The Philippine census (1948), for instance, was based on "usual occupation" and, according to the instructions, persons were to be reported unemployed if they were out of work temporarily and involuntarily.

In other censuses attempts were made to clarify the problem of persons reporting themselves as having an occupation but not being at work by asking them questions concerning their reasons for not working, the length of their idleness, and their ability to work. This was so, among others, in the censuses of Canada (1947), Egypt (1946), France (1946), and Sweden (1945). Such procedures were, of course, open to the criticism that the true reasons were not always known to the respondent; even if they were, it was not easy to obtain reasonably accurate responses.

In a number of surveys unemployment information was gathered simply by asking those reporting themselves "usually economically active" whether or not they were actually at work on the census date. It should be noted that such a *de facto* restriction of the reference period to one day tends to increase the number of persons reporting themselves unemployed and decrease the number of employed. This effect of a very short period of reference is due to the general practice in this country of the priority system, already mentioned, which assigns to employment precedence over unemployment so that a person reported as working only one day during the reference week is classified as employed.

Similar to the concept of usual activity are the concepts of usual occupation and usual industry; each pertains to a long period of reference, and each permits analytical applications and interpretations not possible if a short reference period is being used. It should perhaps be pointed out here that the use of these various activity concepts and the length of the reference periods depend on the contemplated data analysis. The introduction of usual economic activity opens new and interesting possibilities for socioeconomic analysis, but it considerably complicates the measurement and interpretation of unemployment. The subjective nature of this concept, an advantage in some analysis, may turn out to be a considerable obstacle in other situations.

In connection with efforts to throw light on the earning structure, we can replace the concept of "usual economic activity" with the concept of "main source of livelihood." A main source of livelihood is the principal source from which a person derives his economic sustenance for a substantial period of time; it therefore corresponds, from a formal point of view, to usual economic activity.

According to the United Nations recommendations (Statistical Papers Series M, No. 44, *Principles and Recommendations for the 1970 Population Censuses,* New York, 1969), the following classification of main sources of livelihood is suggested:

a. *Economic activity* (income from wages, salaries, fees, commissions, pay in kind, subsistence production, sickness and maternity compensation).

b. *Pensions of all kinds* paid by the state, other public bodies, cooperative organizations, enterprises, or institutions.

c. *Benefits and assistance* (other than pensions) provided by the state, by other public bodies, cooperative organizations, enterprises, or institutions (e.g., scholarships; unemployment insurance benefits; relief; family allowances; aid provided to inmates of mental or other hospitals or of institutions for the care of the aged, the needy, the infirm, or orphans).

d. *Property or other investments* such as rents, interest, dividends, royalties from land or mineral rights, life insurance benefits, etc.

e. *Support by another person or persons.*

As a rule, statistics based on the concepts of main source of livelihood and usual type of activity provide a better foundation for manpower projections than do labor force measures. They also yield more stable employment rates than do those based on labor force concepts. Furthermore, the concept of main source of livelihood also provides good access to dependency statistics; e.g., it permits classifying dependents according to the main source of livelihood of their supporters. This again makes it possible to consider dependency within a family in the description and analysis of social stratification. It also permits comparison of the structure of the main source of livelihood for economically active persons with that of the economically inactive ones.

Measuring Quality of Manpower

Characteristics indicative of what might be termed the quality of manpower, other than information on occupation and class (employer, employee, etc.), to the extent that such data can be associated with quality of labor input, have been unmentioned so far. Strictly speaking, measurement of quality of manpower is still very much in an exploratory stage, and at best would require administration of complex tests to the survey population. Other measures, therefore, are used as a more realistic and practical substitute.

Foremost among such measures (because they are relatively easy to come by) are school attendance, educational attainment, and educational qualifications (see recommendations in *International Standardization of Educational Statistics,* by UNESCO, Paris, 1958, and in *Manual of Educational Statistics,* by UNESCO, Paris, 1961).

School attendance is indicative of the future structure of manpower in terms of quality, but is mainly used to evaluate the performance of the school system. Accordingly, school attendance—attendance at any regular educational institution, public or private, for systematic instruction at any level of education during a well-defined time period—is generally applied in this country to the population from the age of three or five years (or the age of entrance into the first level of school) to the age of 35 years, and is usually limited to formal education, excluding in-service training courses and the like.

Educational attainment refers to the highest grade completed within the most advanced level attended. Special education such as education of the handicapped should be included, and secondary and higher education should be subdivided into general education, teacher training, and vocational education. Vocational training, in turn, according to latest census practice, should distinguish the following main fields:

a. Business, office work

b. Nursing, other health fields

c. Trades and crafts (mechanic, electrician, beautician, etc.)

d. Engineering or science technician; draftsman

e. Agriculture or home economics

f. Other fields (specified)

To convey an idea about the quality of training, length of course and number of hours per week might be shown.

Educational qualifications aim at disclosing degrees, diplomas, certificates, etc., acquired by individuals through full-time or part-time study in such fields as humanities, education, fine arts, law, social sciences, natural sciences, engineering, medical science, agriculture, etc.

Literacy test and other pertinent information. Meaningful questions may be asked on literacy and illiteracy. A person is considered literate if he can read with understanding and write a short simple statement on his everyday life. If he can read but not write, he should not be considered literate. A person is regarded as functionally illiterate if he has completed less than five years of school. Within this context, and because ignorance of English presents a major handicap in the utilization of manpower, information on specific language skills may be obtained by survey, especially information on any language other than English that is used in the respondent's home.

Another item of interest in the study of community and small area problems is the distance from the home of the respondent to the nearest schools that would be attended by the different members of the household. Special facilities for transportation to school should also be noted in this connection.

Geographic Characteristics of the Labor Market

Often information on existing travel patterns within or to and from the community under observation will be helpful in delineating the geographic characteristics of the particular labor market area, and in the diagnosis and study of some of its problems. Readily accessible basic information for such purposes is place of usual residence, place of previous residence, duration of residence, and place of work.

Place of usual residence may be different from the place where the respondent was at the time of the survey or from his legal residence. Although most persons will have no difficulty in stating their usual residence, some confusion may arise when persons have more than one (such as students living at a school away from their parents' home and persons who work so far away from their home that they spend only weekends at home). Survey instructions should clarify these situations so that respondents may provide the correct answers.

Place of previous residence is a place where the individual resided before moving or migrating to his present place of residence. For migration statistics, it may be desirable to collect information on place of residence during some specified timespan.

Duration of residence is the time interval, measured in years, during which the respondent has lived at his present *usual* residence.

Place of work is the location where an economically active person performs his occupation. Provision should be made for cases where persons have no fixed places of work because of the itinerant nature of their occupation.

Skillful exploitation of the above-mentioned data on location can yield valuable insights into the geographic characteristics of the labor market, and into travel patterns disclosed by micro information on places of origin and corresponding places of destination of local manpower. Obtaining the needed information would not seem an unduly arduous task, but efficiently extracting its analytical content may require highly complex and imaginative coding and data-handling operations (as exemplified by some of the more elaborate journey-to-work and commuter travel studies).

Specifying Survey Objectives

Once the survey designer has satisfied himself that he is reasonably familiar with the contents of his conceptual toolkit, he will approach the problem of *specifying* the information to be sought by the survey. Sometimes the survey designer and the information specifier will be the same person, and sometimes not; but even in the former case, it may be necessary for the manpower specialist to spell out precisely what results he expects from the survey in order to explain the purpose of the survey and to describe it to the sponsor or funding agent. Explicit agreement has to be reached with the sponsor or funding agent on the particulars of the desired information. The specifications must be concrete and unambiguous.

The first objective, after clarification of concepts, should be the drawing up of survey objectives or topics, which must, in turn, be translated into the condensed and precise language of survey operations. Examples of possible general topics for manpower surveys are: (1) type of economic activity, occupation, or industry; (2) main source of livelihood; (3) socioeconomic status; (4) utilization of manpower; i.e., employment, underemployment, and unemployment; (5) relationship between growth and structure of population and growth of manpower; (6) characteristics of manpower as a productive resource and changes in these characteristics over time; (7) work experience during the past year; (8) extent of work experience of persons not in the labor force; (9) extent to which married women and mothers of young children are working; (10) school enrollment; (11) educational attainment of workers; (12) char-

acteristics of family groups; (13) internal migrations of the labor force; (14) projections of the economically active population; and (15) relationships of education to activities status. Such topics, in various combinations, make up the more complex projects of manpower research. Surveys may furnish the factual underpinnings for the empirical approach to the research undertaking.

Based on a list of the topics to be investigated, a schedule of the information required may be proposed, but usually only part of the information about the items listed will have to be produced by survey. The remainder of the information will already be available elsewhere.

Tabulation planning should be undertaken as soon as survey content is established. Therefore, the next step is to translate the required information into the idiom of survey design. The most convenient and efficient way to do this is to use dummy tables, also referred to as blank tables or table shells. Such tables should furnish the greatest possible detail so as to avoid concealing any facts that might reveal analytically valuable and stimulating glimpses; moreover, the final tabulation should emphasize salient and meaningful patterns and relationships. Therefore, to reconcile the two objectives, dummy tables should be prepared on two levels: First, the so-called working or reference tables on the level of maximum feasible detail, containing large quantities of information and providing comprehensive coverage of the subject matter; and second, the so-called summary or publication tables, showing selected data arranged to focus attention on important comparisons and relationships. It should be noted here that working tables are a convenient means to bring out discussion of the needs and suggestions of prospective users of the information prior to preparation of final tables.

The structural parts of a formal table are the heading; the boxhead (including stubhead, spanner heads, and column heads); the stub column (including stubhead and block or group of line captions with their centerhead); and the field or body composed of cells (see Exhibit 1).

Exhibit 1

Specimen Table

Number and title of table with date — Heading

(Headnote)

Stubhead	Spanner head		Spanner head		Boxhead
	Column head	Column head	Column head	Column head	
Centerhead					
Caption line	cell	cell	cell	cell	
Caption line	cell				
Caption line	cell				
Caption line	cell				
Centerhead					
Caption line					
Caption line					

Block or group

Field or body

Stub column

The heading, the portion of the table that appears at the top, is comprised of the table number and title; there may be a headnote, a statement in parentheses or brackets qualifying and explaining information relating to the table as a whole.

The boxhead is the horizontal portion across the top of the table, containing the stubhead, spanners (also possibly subspanners), and column heads which describe the items in the vertical columns.

The stub column is that part of the table, usually at the left, in which items are listed. The stubhead is the heading of the stub column; it describes the stublisting as a whole. The centerhead in the stub column describes a block or group of caption lines under it. The caption line is the basic unit of the stub.

The portion of the table under the spanners and column heads is called the field, of which the cell is the basic unit. Each cell is located at the intersection of a caption line with a column head. Exhibit 1, with four column heads and six caption lines, contains 24 cells.

Exhibit 2 exemplifies table shells adapted from a selection of manpower surveys.[3]

[3]Agency for International Development, *Conducting a Labor Force Survey in Developing Countries*, prepared by U.S. Department of Labor, Bureau of Labor Statistics, 1964, reprinted in 1969.

Exhibit 2

Table Shells

Table A. Employment Status of the Noninstitutional Population, by Age and Sex

[Include geographic division and date.]

(Persons 16 years of age and over)

Age and sex	Total labor force including Armed Forces		Civilian labor force						Not in the labor force				
			Employed				Unemployed						
	Number	Percent of noninstitutional population	Number	Percent of noninstitutional population	Agriculture	Nonagricultural industries	Number	Percent of labor force	Total	Keeping house	In school	Unable to work	Other
Total													
Male													
16 and 17 years													
18 to 24 years													
18 and 19 years													
20 to 24 years													
25 to 34 years													
25 to 29 years													
30 to 34 years													
35 to 44 years													
35 to 39 years													
40 to 44 years													
45 to 54 years													
45 to 49 years													
50 to 54 years													
55 to 64 years													
55 to 59 years													
60 to 64 years													
65 years and over													
65 to 69 years													
70 years and over													

Exhibit 2, Table Shells (continued)

Table B. Population by Main Source of Livelihood, Age, and Sex

[Include geographic division and date.]

Age and sex	Total	Main source of livelihood					
		Economic activity	Pensions of all kinds	Benefits and assistance (other than pensions)	Property or other investments	Support by another person or persons	Not stated
Both sexes							
All ages							
Under 16							
16-19							
20-24							
25-29							
30-34							
35-39							
40-44							
45-49							
50-54							
55-59							
60-64							
65-69							
70-74							
75 and over							
Not stated							
Male (as for both sexes)							
Female (as for both sexes)							

Exhibit 2, Table Shells (continued)

Table C. Employment Characteristics of the Female Population, by Marital Status Cumulative by Years of Age and Over

[Include geographic division and date.]

Age group and marital status	Total females . . . years of age and over	Type of activity				
		Economically active			Not economically active	Not stated
		Employed	Unemployed			
			Total	Seeking work for the first time		
Total						
Under 16						
16-19						
20-24						
25-29						
30-34						
35-39						
40-44						
45-49						
50-54						
55-59						
60-64						
65-69						
70-74						
75 and over						
Not stated						
Single (as for total)						
Married (as for total)						
Widowed (as for total)						
Divorced (as for total)						
Separated (as for total)						
Not stated (as for total)						

Exhibit 2, Table Shells (continued)

Table D. Persons 16 Years of Age and Over at Work in All Industries and in Agriculture, by Hours Worked

[Include geographic division and date.]

(in thousands)

Hours worked	Total, all industries	Agriculture			
		Total	Wage and salary workers	Self-employed workers	Unpaid family workers
Total					
1 to 34 hours					
1 to 14 hours					
15 to 21 hours					
22 to 29 hours					
30 to 34 hours					
35 to 40 hours					
35 to 39 hours					
40 hours					
41 hours and over					
41 to 47 hours					
48 hours					
49 hours and over					
49 to 54 hours					
55 to 59 hours					
60 to 69 hours					
70 hours and over					
Average hours					

Note: [Information that is not of the same nature should be set off by a rule.]

Exhibit 2, Table Shells (continued)

Table E. Selected Characteristics of Persons at Work in Nonagricultural Industries, by Full-Time and Part-Time Status

[Include geographic division and date.]

(16 years of age and over)

Characteristics	Total at work		Part time—1 to 34 hours					Full time		
			Total	Usually work full time on present job		Usually work part time on present job		35 to 40 hours	41 hours and over	Average hours
	Number (thousands)	Percent		Part time for economic reasons	Part time for other reasons	For economic reasons	For other reasons			
Age and sex										
Total										
Male										
16 and 17 years										
18 to 24 years										
25 to 34 years										
35 to 44 years										
45 to 64 years										
65 years and over										
Female										
16 and 17 years										
18 to 24 years										
25 to 34 years										
35 to 44 years										
45 to 64 years										
65 years and over										
Marital status and sex										
Male										
Single										
Married, wife present										
Other										
Female										
Single										
Married, husband present										
Other										
Color and sex										
White										
Male										
Female										
Nonwhite										
Male										
Female										

V. Choice of Survey Vehicle and Descriptors

After the information to be obtained by survey has been specified and couched in the language of table shells, an appropriate type of survey can be selected. The choices which present themselves most frequently are (1) between a population and an establishment type and (2) between a synchronous (cross section) and a diachronous (time series) type.

The Enumeration Unit

One first chooses the enumeration unit. Whether one chooses the individual, household, or establishment as the unit will depend upon the kind of information he hopes to produce by the survey. The fundamental unit of enumeration in a population survey is the person, and the household is the general framework within which individuals are identified. The household is also common to housing enumerations and to housing and household sample surveys. When the household is the enumeration unit, special provision must be made for the enumeration of persons who are not members of households. Such persons may reside in military establishments, in correctional and penal institutions, in dormitories of schools and universities, in hospitals, in religious institutions, etc.

Household surveys are a better vehicle than establishment surveys for soliciting answers pertaining to characteristics which cannot be separated from the individual employee—for determining the many sociological variables (such as marital status, family composition, educational achievement, and work training) and the many economic variables (income received, hours worked, how long working on present job, etc.).

In general, establishment surveys will attempt to answer questions on the location of establishments (e.g., the destination questions in a journey-to-work study), on opinions and attitudes of employers (e.g., estimates of future manpower requirements), or on matters which generally presuppose knowledge of management policies, and on matters related to the job structure in the establishment (e.g., job vacancy information). In the establishment survey no direct contact is generally required of employees and interviewer; hence no question concerning employees' opinions or characteristics can, as a rule, be accommodated.

In this country the outstanding surveys based on an establishment approach are the annual survey and census of manufactures and the current employment statistics (CES) program of the Department of Labor and cooperating state agencies.

In the census of manufactures a company operating at more than one location is required to submit a report for each location. A company engaged in distinctly different lines of activity at one location is also required to submit separate reports if the plant records permit such a separation and if the activities are substantial in size. Each establishment report provides information on employment of all employees, both full-time and part-time, during the reference period (employees of central administration and auxiliaries are excluded). All persons on paid sick leave, paid holidays, or paid vacations during the reference period are included. Those excluded are members of the Armed Forces and partners and proprietors of unincorporated firms. Employees up through the working foreman level are reported as "production and related workers"; this category includes those workers engaged in processing, assembling, inspecting, receiving, storage, handling, packaging, warehousing, shipping, maintenance, repair, janitorial or watchman services, product development, recordkeeping, and other services closely associated with production operations. Nonproduction personnel, including those engaged in factory supervision above the working foreman level as well as sales, advertising, credit, collection, clerical, legal, medical, professional, and technical personnel, are reported as "all other employees."

For "production and related workers," the census of manufactures requests employment figures for four selected pay periods in one year; but for "all other employees" only a mid-March figure, to simplify the schedule and lighten the burden of respondents. The "annual average" employment data are composed of an average of the four monthly figures for "production and related workers" and the March figure for "all other employees."

"Payroll" includes gross earnings paid in the calendar year to all employees on the payroll of manufacturing establishments. Employers are told that they can follow the definition of payroll used for calculating the federal withholding tax. This "payroll" includes all forms of compensation prior to deductions such as social security contributions, group insurance, withholding taxes, etc. Included in the total are salaries of officers if the establishment is a corporation. Payments to proprietors or partners of an unincorporated concern are excluded.

Data are requested on "man-hours of production and related workers," consisting of all plant man-hours of production and related workers as defined above. Actual overtime hours are to be included, but hours paid for vacations or sick leave are not.

Broadly speaking, the problem of employment is approached by establishment surveys from the point of view of jobs occupied while it is approached by household surveys from the point of view of the individual's major economic activity. Seen in that perspective, the establishment approach yields the number of jobs occupied—the supply side—while the household approach yields the number of economically active persons (those working or seeking work)—the demand side. An individual, of course, may be employed at two or more establishments; in the establishment approach, he would be counted at each job which he occupies.

An establishment type of survey could be modified if the information sought includes not only the usual data on number of persons employed, payroll, etc., but also opinions of individual employees. In such a survey the establishment would give the interviewer access to its employees. Much labor could be saved if a local directory or address list could be uncovered, perhaps with SIC entries already coded.

Cross Section Versus Time Series Survey

A second choice which now has to be made is between a cross section (synchronous) and a time series (diachronous) survey. A diachronous survey is the more complicated one. It has to be institutionalized; i.e., arrangements have to be made for the conduct of more than a single survey wave. The cross section survey is like a snapshot or a still photograph while the time series survey is like a movie. Where actual processes are to be analyzed, one or a series of snapshots will not do. What is required is an attempt to reconstruct the diachronous nature of the process. In other words, explicitly, the time dimension will have to be added. This, of course, complicates the empirical evidence needed; where sampling is required, it introduces novel and more difficult problems. This is the reason why, until recently, the sampling of a diachronous process was the great exception. Only during the past few years have such attempts been made.[1]

Key Descriptors

In the cross section survey the statistical measures—the descriptors—sought will frequently be the univariate frequency distribution and the measures describing it; i.e., the frequency distribution of one variate only, as contrasted with a multivariate one.

The problem now is to choose wisely among the available key descriptors. There are several so-called averages available, among which probably the best known are the arithmetic mean, the median, and the mode. The arithmetic mean is a computed average while the median and mode are *position* averages. The arithmetic mean does not correspond to any real observation in the distribution while the median and mode do. An arithmetic mean wage of $150 does not indicate that any wage envelope in the distribution contains exactly that amount, any more than a mean family size of 4.3 indicates the existence of a 4.3 member family. The mean is a computed figure standing for the sum of items divided by their number, and signifying that if every wage earner in the distribution had the same and equal wage, this wage would be the arithmetic average wage. The concept has desirable arithmetic properties.

As previously stated, the median and the mode are position averages. If all items were arrayed according to ascending or descending value, the median would be the value of the item in the middle; i.e., half of the items would be less than and half more than the median. The mode is the value of the item that occurs most often. Hence, a unimodal frequency curve is one which has one hump only, and a multimodal one has several humps showing the clustering of observations at more than one value.

An Example of Frequency Distribution

Let us assume that a wage survey produced 142 responses to a question relating to weekly wages. We first organize the responses in the form of an array ranging from a low of $166.03 to a high of $169.94 (a difference of $3.91). This listing can be subdivided using class intervals, which group the data. By applying Sturges' rule, we tabulate the data in eight specific class intervals, each 50 cents apart (see Exhibit 3).[2]

In many situations a graphic representation gives a clearer understanding of a frequency distribution and its application. For our graph use the horizontal X_1 axis to mark off the values of the variable; i.e., the wage-rate class intervals. They appear in Exhibit 4 as class limits (class midpoints could be used). The X_2, or vertical axis, shows the fre-

[1]See "Cornell Retirement Study," *Journal of Social Issues*, Vol. 14, No. 2, 1958. See also J. W. B. Douglas and J. M. Brumfield, "The Reliability of Longitudinal Surveys," *Milbank Memorial Fund Quarterly*, Vol. XXXIV (July 1956), No. 3, pp. 227ff.; and most recently, Lola M. Irelan and Joseph Steinberg, "A Retirement History Study," *Proceedings of the Social Statistics Section, American Statistical Association*, 1968, pp. 163ff.

[2]Sturges' rule states that the number of intervals should be $k = 1 + 3.3$ log of n, where k is the total number of classes, and log the logarithm to the base 10. The logarithm of 142 is 2.152288 and $1 + (3.3 \times 2.152288)$ is approximately 8. We then divide this into the range $169.94 - 166.03 = 3.91$ and obtain 0.49, which we round to 0.50 and use as the size of each interval. Sturges' rule is, of course, only an approximate guideline which tells us the number of class intervals that should give us a unimodal distribution (a distribution with one hump), permitting the observations to cluster around a class midpoint which should be a convenient number.

Exhibit 3

Average Weekly Earnings of Production Workers in Manufacturing Industries

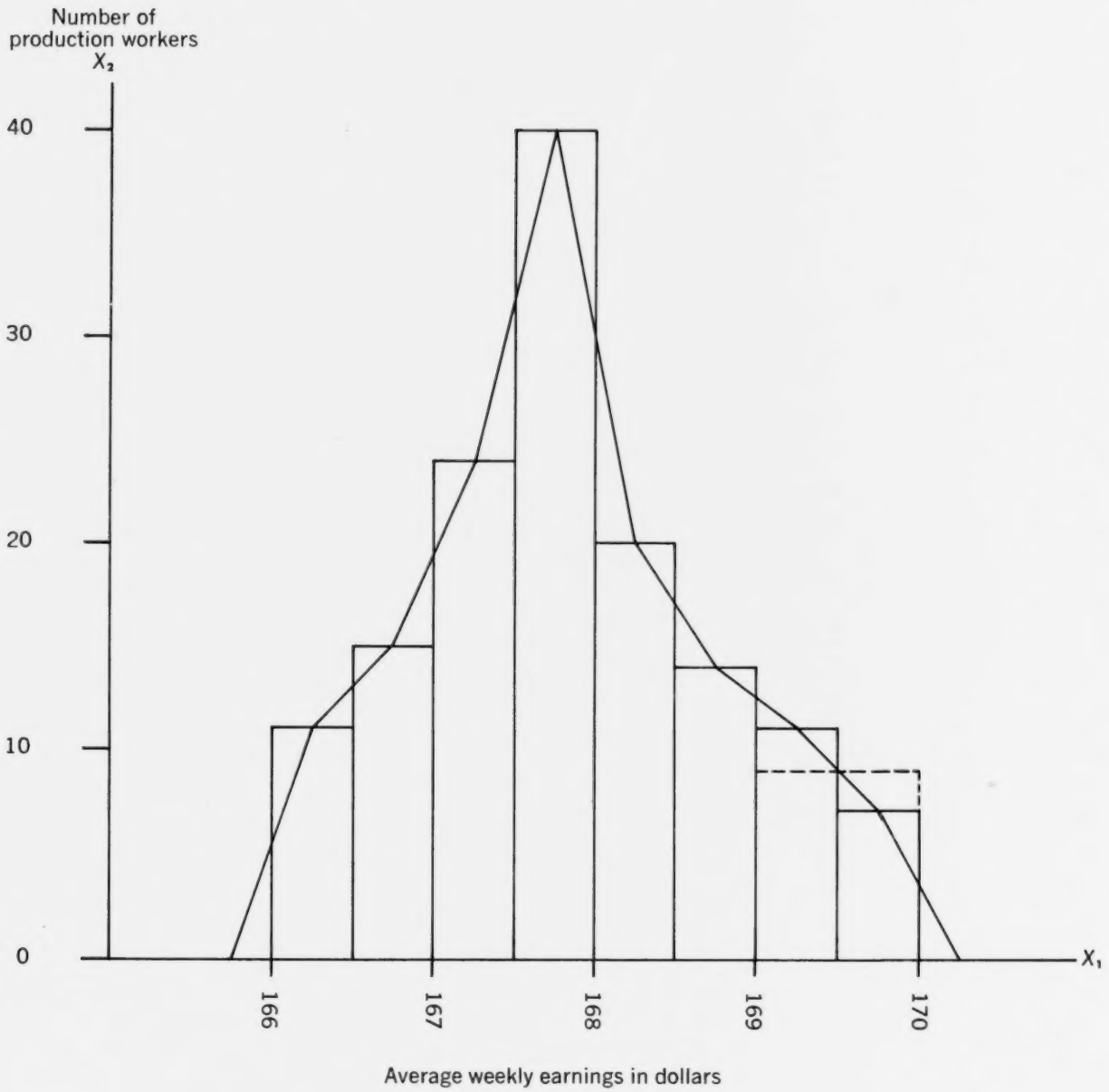
$166.00-166.49	$166.50-166.99	$167.00-167.49	$167.50-167.99	$168.00-168.49	$168.50-168.99	$169.00-169.49	$169.50-169.99
166.03	166.53	167.05	167.51	168.00	168.60	169.00	169.50
166.07	166.60	167.09	167.53	168.03	168.64	169.12	169.54
166.14	166.71	167.12	167.54	168.05	168.73	169.15	169.51
166.10	166.75	167.14	167.55	168.05	168.78	169.15	169.65
166.21	166.78	167.15	167.55	168.06	168.80	169.17	169.73
166.29	166.80	167.17	167.55	168.07	168.82	169.20	169.84
166.34	166.81	167.18	167.57	168.09	168.84	169.21	169.94
166.37	166.83	167.20	167.58	168.11	168.85	169.24	
166.40	166.84	167.20	167.61	168.15	168.87	169.45	(7)
166.40	166.87	167.22	167.65	168.15	168.91	169.46	
166.42	166.91	167.23	167.66	168.17	168.93	169.48	
	166.92	167.25	167.68	168.18	168.95		
(11)	166.93	167.25	167.68	168.20	168.98	(11)	
	166.93	167.28	167.71	168.22	168.99		
	166.95	167.29	167.73	168.29			
		167.32	167.74	168.30	(14)		
	(15)	167.32	167.75	168.33			
		167.38	167.75	168.40			
		167.41	167.78	168.45			
		167.44	167.79	168.47			
		167.47	167.80				
		167.47	167.80	(20)			
		167.48	167.81				
		167.49	167.82				
			167.83				
		(24)	167.83				
			167.85				
			167.85				
			167.85				
			167.85				
			167.86				
			167.88				
			167.88				
			167.89				
			167.90				
			167.91				
			167.92				
			167.92				
			167.94				
			167.96				
			(40)				

quencies; i.e., the number of observations made for each class. Each rectangle represents one observation. If the area of each rectangle is one unit, the area of each bar is equal to the frequency of the interval on which it stands. The areas over the several intervals are proportional to the frequencies of these intervals.

If at all possible, frequency distributions should be formed with equal class intervals. If class intervals have to be varied, recourse has to be taken to the concept of frequency density. Frequency density is an estimate of what the frequencies would be if a uniform class interval were used. In other words, the density of observations is the number of cases per unit of the class size. For example, the income tax return information in Exhibit 5 is presented with just such unequal class intervals; for entries one through five the interval is $1,000; after that the intervals jump $5,000,

Exhibit 4

Frequency Histogram and Polygon
Average Weekly Earnings of Production Workers in Manufacturing Industries



Note: A diagram like this one is called a bar diagram or a histogram; the inscribed one connecting the midpoints, a polygon.

Exhibit 5

Individual Income Tax Returns by Adjusted Gross Income Classes 1968 Preliminary

Entry	Adjusted gross income class (in dollars)	Number of returns (in thousands)	Frequency density, No. returns per $1,000 income (in thousands)
	Taxable returns	**61,315**	**61,315.000**
1	Under 1,000	651	651.000
2	1,000 - 1,999	5,098	5,098.000
3	2,000 - 2,999	4,450	4,450.000
4	3,000 - 3,999	4,862	4,862.000
5	4,000 - 4,999	4,874	4,874.000
6	5,000 - 9,999	22,975	4,595.000
7	10,000 - 14,999	11,963	2,393.000
8	15,000 - 49,999	6,069	173.000
9	50,000 - 99,999	300	6.000
10	100,000 - 499,999	78	.195
11	500,000 - 999,999	3	.006
12	1,000,000 and over	1	negligible

$35,000, then $50,000, $400,000, $500,000; finally there is an interval with no upper limit. Therefore, we divide the number of returns by the number of thousands in that interval; i.e., the first entry (651) by 1, every entry up to the 6th by 1, the 6th (22,975) and the 7th (11,963) by 5, the 8th by 35, the 9th by 50, the 10th by 400, and the 11th by 500.

If unequal intervals are to be shown, we must remember that each observation is to be represented by a rectangle of equal area. Thus, in the histogram in Exhibit 4, the dotted line at the right tail end of the distribution signifies that there are 9 observations ($7+11\div2$) in the interval from $169 to $170, an unequal interval. Once again we can see that frequency is an incomplete term to describe the measure along the vertical axis. It would be more accurate to speak of the density of an observation, that is, of the number of cases per unit of the horizontal axis.

The values from Exhibit 3 are also plotted as points on the graph in Exhibit 4, forming a polygon. If we were to increase the number of observations, we would finally approach a more or less smooth line; i.e., the plotted points would display a frequency curve as the shape of the distribution.

The measure on the X_2 axis of a frequency distribution may be in terms of absolute frequency or in terms of relative frequency, such as percentage. The area of the histogram equals 100 percent, or unity; therefore, a comparison of different distributions is facilitated if relative frequencies are used. In graphic terms, it is possible to compare shapes of different distributions (frequency curves) without having to make allowance for differences in size.

Cumulative Distribution

Occasionally it is convenient to show distributions as cumulative arrangements of variables. Cumulative frequencies can be shown on either a "less-than" or "more-than" basis. For instance, production workers can be shown on a more-than weekly earnings basis; the corresponding tabulation for the previous example would show that 142 (all workers) earned more than $166.00, 92 earned more than $167.50, and 52 earned over $168.00 (see Exhibit 6 for this and the corresponding less-than distribution).

Ogive

The graph of a cumulative distribution takes the form of an ogive, or an S-shaped line. It has the advantage of lending itself particularly well to interpolation. Any interpolation is, of course, an approximation. Thus, if it is desired to find the number of workers earning more than $168.50, we read 32 off the graph (see Exhibit 7).

Conversely, if the number of cases falling within any given interval is to be determined, say the number of earn-

Exhibit 6

Cumulative Distribution of Production Workers on Basis of Weekly Earnings

(Data for Ogive)

Weekly wage	Cumulative distribution of workers	
	Number	Percent
Less than:		
$166.50	11	7.8
167.00	26	18.3
167.50	50	35.2
168.00	90	63.4
168.50	110	77.5
169.00	124	87.3
169.50	135	95.1
170.00	142	100.0
More than:		
$166.00	142	100.0
166.50	131	92.2
167.00	116	81.7
167.50	92	64.8
168.00	52	36.6
168.50	32	22.5
169.00	18	12.7
169.50	7	4.9

ers making between $168 and $169, we can interpolate for $169 the figure 124, and for $168 the figure 90; by subtraction we obtain 34 as the desired answer.

This curve is also one of the most effective and useful representations of a frequency distribution not suffering from the limitations of the particular class interval used. The shape of the curve will be essentially the same even when the class intervals and the number of classes vary as uneven class intervals do not deform the ogive.

The Lorenz Curve

Related to the ogive shown in Exhibit 7 is the Lorenz curve, used in the study of income distributions, distributions of wealth, or of production plotted against number of producing units. If we plot the percentage of cumulated income against the percentage of cumulated workers beginning, for instance, with the lowest, we obtain a graph in which complete equality would be shown by a diagonal from the lower left to the upper right. Any deviation from this straight line indicates some degree of inequality. We can, therefore, study inequality of incomes at different points in time, for instance, by comparing the pertinent Lorenz curves (see Exhibit 8).

Merits of Mean, Median, and Mode

Very often, however, we need a single statistic as a compact descriptor of the frequency distribution even if some of the information has to be given up. For instance, if the distribution of local wages is to be compared with state wages, we may prefer to compare two descriptive statistics instead of two entire distributions.

It is well to remember that often the mean is subject to less sampling error than the mode or median; that once the data have been organized in the form of a frequency distribution, mode and median are more easily computed than the mean; and that the median is not a good measure when, as with the number of children or family size, there are very few values possible for the observations.

The median is little influenced by extreme values; the mode, not at all. In a distribution of income recipients in a community, the arithmetic mean would be quite sensitive to the immigration of one single millionaire, the median hardly sensitive, and the mode not at all. On the other hand, if we want to compare two distributions of wage earners in terms of the middlemost, we would choose the median for comparison; if in terms of the most frequent wage, we would choose the mode.

A measure often used is a weighted arithmetic mean. Theoretically, all arithmetic means are weighted. If no explicit weight is assigned to every item in the distribution, the implicit weight of each item is 1. Let us assume that the daily wage of each of 10 junior research assistants is $50; of two senior ones, $100; and of the project leader, $125. The correct, or weighted, mean wage rate would be:

$$(10\text{x}50)+(2\text{x}100)+(1\text{x}125)\div 10+2+1=\frac{825}{13}=\$63.46.$$

The problem of weighted arithmetic means also arises in taking a mean of means. It is necessary in this case to weight each mean according to the importance of its category. For instance, consider the cost of production of a group of firms:

Group	*No. firms*	*Average*	*Total*
A	2	$ 300	$ 600
B	15	400	6,000
C	20	600	12,000
	37	$1,300	$18,600

To obtain the mean total cost, we divide $18,600 by 37 and obtain $503 as the answer, and not the unweighted mean $1,300÷3, or $433.

Ratios, Percentages, and Proportions

So far the description has dealt primarily with quantitative data. If we need to deal with descriptors of nonquantitative

Exhibit 7

Ogive
Cumulative Distribution of Production Workers on Basis of Weekly Earnings

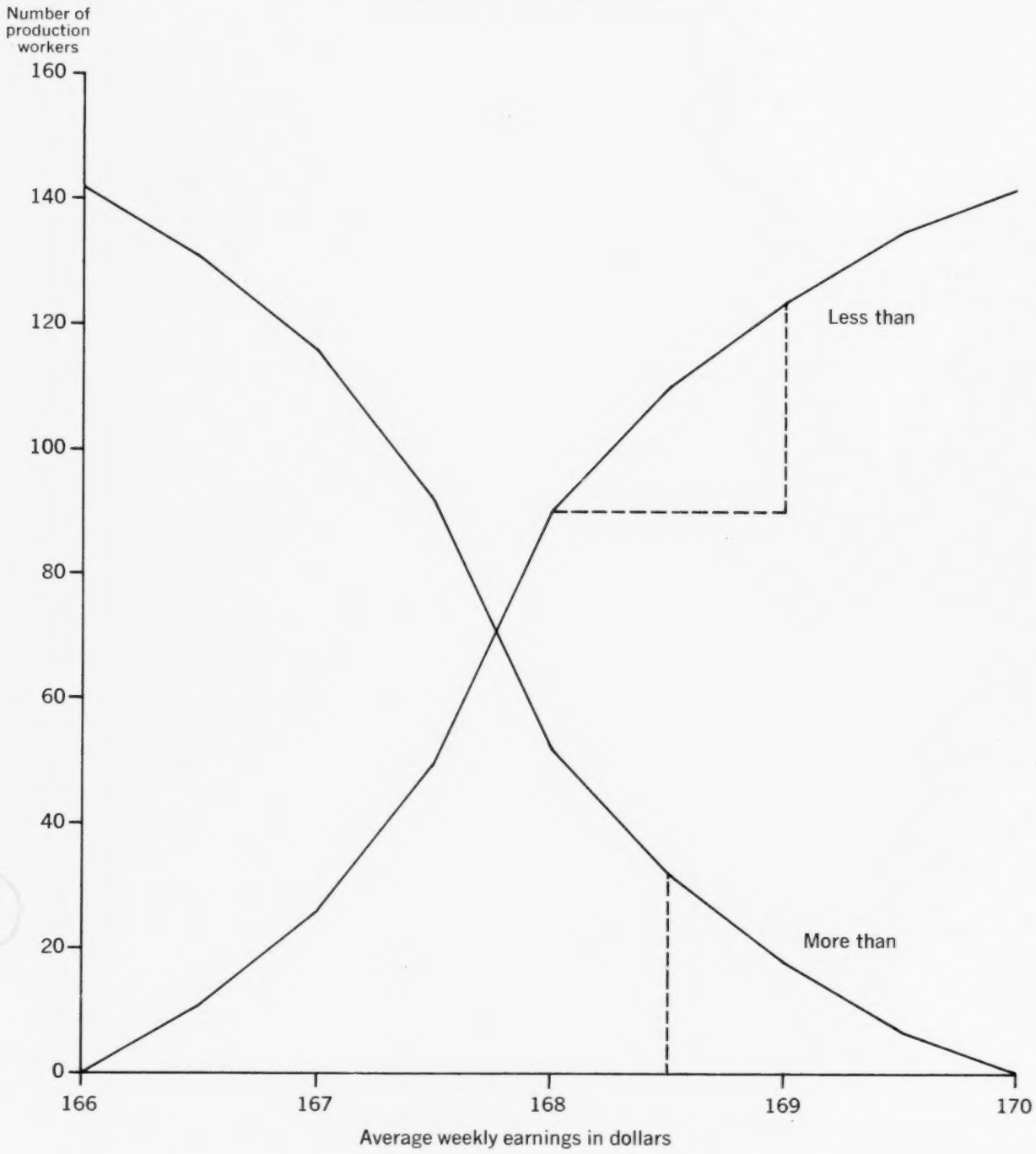
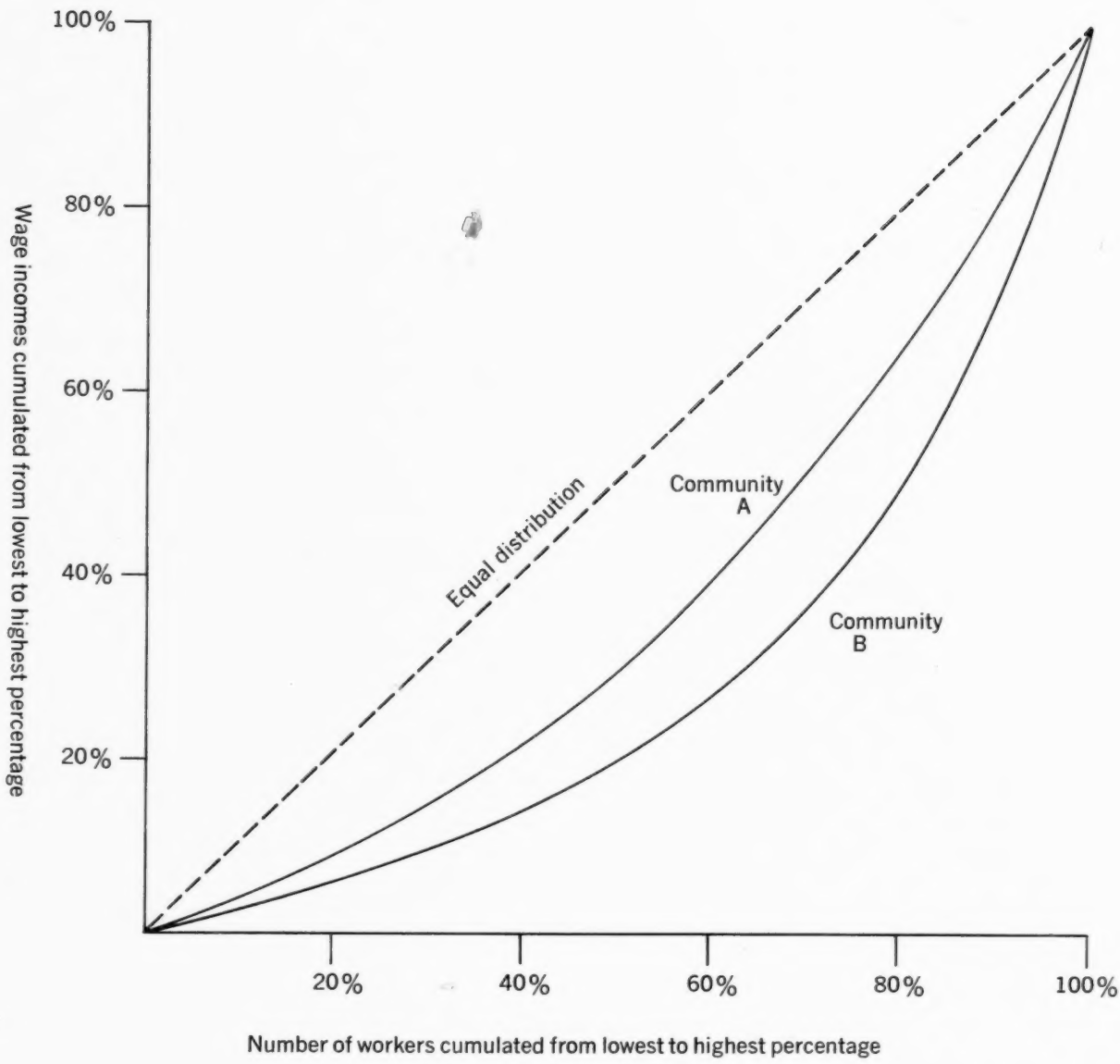


Exhibit 8

Lorenz Curve
Distribution of Income From Wages in 1969



characteristics, we often use ratios, percentages, and proportions to condense the information. Such derived figures also generally facilitate comparison; they are therefore important in the analysis of results.

The simplest case of a nonquantitative characteristic is a dichotomous one (dividing a group into two parts). As an example, let us consider the characteristics "white" and "nonwhite" with regard to color. Let us assume that there are A white and a nonwhite persons. A ratio is the two numbers (frequencies) in the form of a quotient, $A \div a$, or a fraction $\frac{A}{a}$, describing the relative frequency of major category, here A. If A is 150, and a is 100; the "indicated" ratio of A to a is 150 to 100, or 3 to 2; the "actual" ratio is 1.5.

The ratio is independent of the absolute number; it is a relative number suitable for comparison. If a ratio is larger than 1, the most usual way to write it is in the form of the "actual" quotient, which is 1.5 in the above example. If it is less than 1, we usually multiply it by a power of 10, such as 100 or 1,000. In the above example, if we would use 150 instead of 1.5 (multiplying our quotient by 100), we would call this modified ratio a percentage.

Another type of ratio of considerable practical importance is a proportion where the numerator of the quotient is the frequency of one category, and the denominator is the total frequency of the two categories. Thus, A is the number of units possessing a given attribute, for instance those who are female members of the labor force, and a represents the units not possessing this attribute. The total number of units is $N = A + a$. The proportion of females in the labor force is $P = \frac{A}{N}$. If A is 30 and N is 90, P, the proportion of women in the labor force is $\frac{30}{90}$ —one-third, or 0.33. Just as ratios are frequently multiplied by 100 to yield percentages, so are proportions. In the above example, 33 percent of the labor force is female.

Ratios are also used to compare any two quantities. Thus, the ratio of the number of children under five years of age to the number of women age 20-44 x 100 is called a fertility ratio; the number of people per square mile, i.e., the number of inhabitants of a given area divided by the number of square miles of the area, is called population density. Various ratios giving a quantity per number of people involved, such as consumption of meat divided by the population of a county, express per capita figures which can be readily compared. The ratio of economically active persons to the total population of all ages is termed the crude activity rate. The number of unemployed divided by the total size of the labor force multiplied by 100 indicates the unemployment rate. The ratio of the number of working people of a given age group to the total number of people in that age group multiplied by 100 is termed the labor force participation rate of that age group. Likewise, we may define the labor force participation rate of component groups by color, sex, marital status, etc. All kinds of conceptual refinements are, of course, possible.

Variability or Dispersion of Frequency Distribution

In addition to averages and ratios which describe a distribution by a single one of its characteristics, another aspect of frequency distribution deserves mentioning. This is the variability or dispersion of the distribution. The simplest measure of variability is the range. The range is the difference between the highest and the lowest values of a series. Therefore, the extreme values alone determine this measure. To make the range less dependent on the extreme values, an interpercentile or interquartile range is sometimes preferred. For instance, the first one may exclude the lowest 10 percent and the highest 10 percent; it is the 10th-90th percentile range. The second divides the distribution into four equal parts and uses only the values between the 1st and 3rd quartile.

To obtain a measure which is influenced by each observation, we take the sum of all deviations from the arithmetic mean (disregarding the sign—otherwise the sum of deviations about the arithmetic mean would be zero) and divide this sum by the number of observations. This measure is referred to as the average or *mean deviation*.

The most important of the measures of variation, because of its theoretical implication, is the *standard deviation*. Instead of disregarding the signs, we convert them into positive magnitudes by squaring each one, finding their sum, and dividing by the number of observations. This mean sum square is the square of the standard deviation, or the variance—of considerable importance in theoretical statistics, especially in the description of probability and sampling distributions. When we take the square root of the mean sum of squared deviations, we obtain the standard deviation.

The standard deviation divided by the mean of the same distribution, if multiplied by 100, is a modified version of the coefficient of variation, whose square is the so-called relvariance, abbreviated "rel-var." This measure is much used in sampling theory.

To compare widely differing distributions, some statisticians have recommended the use of pure numbers. This is useful, for instance, where we want to compare a distribution of hours with a distribution of accidents—the hours being indicated in minutes and the accidents in individual occurrences. Comparison of two such standard deviations

and or two such mean deviations is possible only if they are divided by some factor having the same dimension. Thus, a mean deviation of minutes divided by the mean (or by the mode) of the same variable and or a standard deviation of minutes divided by the mean provide pure numbers suitable for comparison with similarly derived pure numbers from accident data deviations.

Comparison and interpretation may be facilitated if the scale of the variable is expressed in units of the standard deviation rather than in its original unity. Distributions reduced to the scale of the standard deviation may be regarded as expressed in "absolute" units, a property of practical significance; e.g., in health and industrial accident analysis.

VI. Questionnaires and Fieldwork Phase

Two of the foremost instrumentalities available to the social science researcher are the interview and the questionnaire. Both place a heavy emphasis on the respondent's verbal report; they are therefore limited to subject matter which the respondent is able and inclined to communicate.

The questionnaire is less costly to administer than the interview; usually evokes greater confidence on the part of the respondent regarding his anonymity; and is likely to produce greater uniformity from one observation to the other because of its standardized wording. The interview, however, is likely to produce better results when the respondents are less educated, when the subject is complex, and when answers involve controversial subject matter.

Unlike the technician in scientific fields, the social science technician who performs measurement with the help of the questionnaire and the interview has at his command no comprehensive theory to help him understand the complex communication process going on between himself and the respondent. He is therefore more nearly comparable to an artist than to a scientist, and we speak about the art rather than the science of interviewing and constructing questionnaires.[1] A set of rules of thumb has been developed over the years, but some of these rules seem to be accepted more uniformly and more frequently than others.

It is generally acknowledged that the questionnaire or interview schedule has two outstanding purposes: (1) to translate the research objectives into individual questions, keeping in mind the survey specifications; and (2) to establish the best possible lines of communication with the respondent. Therefore, specifications and statements of objectives must be available prior to starting questionnaire construction.

Where the question content, in view of the research objectives, is more likely to aim at ascertaining facts, it is well to keep in mind that events of the past or events of little interest are unlikely to be remembered, and that reported facts must be evaluated in terms of their credibility. Questions involving beliefs and feelings need to be more flexible, allowing the respondent more freedom. "Should" and "ought" questions might help to elicit responses where other more direct questions would fail. Careful questionnaire construction would place the emphasis on factual subject matter.

A standardized questionnaire or interview guide with exactly the same wording, in the same order, ensures that all respondents are replying to the same question. Standardized questions may consist of either "fixed-alternative" or "open-end" questions. A fixed-alternative questionnaire has questions to which the responses are limited to "yes" or "no," or to a series of replies indicating various (numerical) degrees expressing the respondent's position. An open-end question is intended to give the respondent the opportunity of a free response. Examples are questions such as: (1) "At what age do you expect to stop working and why?" (2) "If by some chance, you were to get enough money to live comfortably without working, do you think that you would work anyway? Why or why not?"

Fixed-alternative questions have the advantage of being simple to administer and lending themselves to precoding. Open-end questions are difficult to administer, and the analysis of answers is often involved and perplexing. They are more appropriate in the experimental stage that may precede the elaboration of a standardized questionnaire.

The questionnaire should be limited in size; the language should approximate the language of the respondent; and it should offer as much opportunity as possible for complete and precise communication. In other words, the language in most cross section surveys should be simple. On the other hand the questions should be sufficiently clear to avoid terms that are often misunderstood. Terms such as "compulsory arbitration," "real wages," and "exclusion from employment" are to be avoided. "Are you married, single, or divorced?" may be more uniformly understood than "What is your marital status?" Questions regarding nationality and many other personal data questions often cause misunderstanding unless explained more precisely.

An important issue is whether the frame of reference within which a particular question is being asked is clear to all respondents. For instance, if the question, "Do you think that the government should put a ceiling on wages?" were asked, many answering in the affirmative would take for granted that prices are to be controlled similarly. Com-

[1] Leon Festinger and Daniel Katz, eds., *Research Methods in the Behavioral Sciences*, rev. ed. (New York: Holt, Rinehart and Winston, 1965), Chapter 8; Claire Selltiz, Marie Jahoda, Morton Deutsch and Stewart W. Cook, *Research Methods in Social Relations*, rev. ed. (New York: Holt, Rinehart and Winston, 1965); *Handbook of Household Surveys, Studies in Methods* (Series F), No. 10 (New York: United Nations, 1964); *Household Survey Manual 1969* (Washington: Bureau of the Budget, 1969); Stanley L. Payne, *The Art of Asking Questions* (Princeton: Princeton University Press, 1951).

parably, it is safer to express alternatives explicitly than to assume that they will be understood from the context. Payne[2] has used the following example: In answers to the question, "Do you think that most manufacturing companies that lay off workers during slack periods could arrange things to avoid lay-offs and give steady work right through the year?" 63 percent of the respondents said that companies could avoid lay-offs, 23 percent that they could not, and 15 percent expressed no opinion. A matched sample was asked the following question with a clearly stated alternative: "Do you think most manufacturing companies that lay off workers in slack periods would avoid lay-offs and provide steady work right through the year, or do you think lay-offs are unavoidable?" Forty-one percent of the respondents answered that lay-offs are unavoidable and 24 percent expressed no opinion.

Another problem to face is whether the question is worded to correspond to the respondent's level of information in a realistic way, and whether he will be able and willing to provide the information. If a question is asked which does not correspond to the respondent's level of information, Festinger points out that it will be unproductive of an answer or will cause the respondent to pretend to competence which he does not possess.[3] The problem is sometimes referred to as expert error; i.e., the error of ascribing to the respondent a higher degree of expertise than he possesses.

Apparently, small changes in the wording of questions may produce large variations in answers. Lack of clarity in definitions, ambiguity, varying meanings of the same word to different people, use of emotional words, and leading questions are all examples of potential sources of error and bias.

There is general agreement on the need to avoid leading questions; that is, questions which, by their wording, seem to suggest a particular answer. "You didn't do any work for pay or profit last week, did you?" It is obvious that such a question invites a negative answer. In asking, "Would you say that you are in favor of price and wage controls?" we make it easier for the respondent to answer "yes" than "no." In his affirmative answer, the respondent is merely agreeing with the language of the question.

Respondents are inclined to give certain answers because of their effect on public opinion. For example, the answers to questions about race or labor relations may have what has been called the "public relations bias." Or questions may receive biased answers because of their timing. If a community has just experienced a race riot, questions on discrimination will yield biased answers.

By merely using a well-known name, a biased effect may be produced. For example, the insertion of President Roosevelt's name into a question caused a 5 percent increase in affirmative replies as reported in *Research Methods in Social Relations*.[4] The first question was: "Do you like the idea of having Thanksgiving a week earlier this year?" The second was: "Do you like President Roosevelt's idea of having Thanksgiving a week earlier this year?" The influence exerted by subtle wording is perhaps best illustrated in the sequence of questions.

Designing the Questionnaire

In designing a questionnaire, probably the best way to commence is to list the topics to be covered, arrange them in order, and then draft the questions. The questions will have to be scrutinized carefully as to their usefulness and necessity, and whether they are perhaps overly detailed for the objective of the survey. Inspecting available questionnaires facing the same or a similar problem may be found stimulating and most useful. We have, therefore, added a few manpower questionnaires as an appendix.

To avoid error and bias, these rules of thumb have been developed governing the art of questionnaire design:

1. Questions to be asked of respondents should be clearly distinguished from instructions.
2. Questions should be simple: only one idea should be covered per question, and words with several meanings should be avoided.
3. General questions should precede specific ones. The first few questions in a questionnaire often have the function of obtaining information as well as motivating the respondent to provide information. The opening questions, therefore, should have human appeal; that is, they should be of interest to the respondent and should be easily answered because they are likely to set the tone of the entire interview.
4. The sequence of the questions should be orderly, and each question should lead logically to the next. If there is doubt about the possible influence of the question sequence, use may be made of a split schedule, in which an exploratory sample of questions is divided between two or more places to enable the questionnaire designer to experiment with such responses and study the effect, if any, of the order in which they are posed.
5. The questionnaire should be arranged with final tabulations in mind, considering the content of the questions and ease of processing the data. A person knowledgeable in systems engineering, if available, should therefore inspect the questionnaire and offer his counsel. The desirability of a self-coding questionnaire may be considered.

[2]See footnote 1.

[3]Festinger and Katz, *op.cit.*, p. 345.

[4]Selltiz, *et al.*, *op.cit.*, p. 564.

6. Numerical codes (see next section) should not interfere with the primary purpose of the questionnaire; i.e., obtaining answers to questions and recording information.

7. Provision should be made for recording answers indicating lack of knowledge or uncertainty.

8. Questions which call for answers involving economic status or other possibly embarrassing items should be asked only after rapport between the interviewer and the respondent has been established.

9. If some of the respondents are more conversant with another language than English, the questionnaire should be translated into that language. This is best done by having translator A translate the questionnaire from English into the second language, and then having translator B, without communicating with A, retranslate it into English. Then a third translator should compare B's version with the original English version.

10. In designing a mail questionnaire, the arrangement in order of interest is particularly useful in avoiding loss of attention on the part of the respondent.

11. The questionnaire should be attractive and should be printed on sturdy paper since the form undergoes extensive handling after it reaches the office.

12. In deciding how many forms to print, it is necessary to take into account the number of forms wasted and used for purposes other than recording answers by respondents.

Coding

Coding is the allocation of numbers (or other symbols) to the answers to questions asked in the survey. It is recognized today as an invaluable aid in saving the time of both men and machines and in facilitating the classification of survey material. This translation of verbal classifications into numerical ones transferable to a punched card or other record greatly eases the analysis of survey results by machine. Even hand tabulation becomes much easier with coded replies.

All potential answers must be known prior to assigning the code. Sometimes it may, therefore, be necessary to test questions to find out the kind of answers to be expected. We shall discuss pretesting in the next section.

It is well to retain more detailed information in the coding system than is expected to be used in the final tabulation since it is always possible to merge groups of codes, recording them in the form of code groups. In recoding or summary coding, responses are sorted by code combinations to distribute them among summary codes. If, for instance, the number of unemployed is desired, several combinations of answers would categorize the respondent as unemployed (see page 34). Punching all these combinations so that they can be sorted as one group would be an example of summary coding.

Questionnaires may be divided into uncoded and precoded types; and the latter into completely and partially precoded ones. "Completely precoded" refers to questionnaires for which all potential answers have been numerically precoded and printed on the form. To the right of the answer, the code number is shown, perhaps as a three-digit figure. Thus "yes (311)," "no (312)" signifies that a "1" in card column 31 stands for an affirmative answer and a "2" in that column for a negative one. The interviewer or respondent merely marks the appropriate answer by circling a number.

Another common procedure is to enter the code symbol directly on the questionnaire at the time of the interview. This is facilitated by printing the relevant codes at the bottom of the questionnaire; the interviewer has to record only the code number.

A partially precoded questionnaire is similar to a completely precoded one, with the exception that codes for the questions not lending themselves well to predetermined answers are left out.

The precoded questionnaire saves time and money, but its main limitations are that it does not lend itself to questions without predetermined answers or ones with a great many possible answers, like those to which an occupation classification code will be assigned.

An uncoded questionnaire is one which does not show any code numbers on the front. However, before machine tabulation can be undertaken, the answers must be completely coded and code numbers must be written down corresponding to the answer to each question. The main difference is that the answers do not have to be predetermined and that not all answers have to be available before the construction of the code is undertaken.

The proper designing of codes is an essential part of every survey. Numerical codes have long been recognized as a concise and accurate method of identifying individual items and groups of related items. There are many different codes and variations of them. For instance, there is the geometric progression code. This is a code which may be used to considerable advantage, provided the number of items is limited. This code assigns to successive items numbers in progression, each time doubling the number previously assigned: thus the base code is 1, 2, 4, 8, 16, 32, etc. Since the sum of any of these numbers will never result in a number assigned as a base code, combinations of answers can be recorded by adding these base codes in one entry instead of having to use several codes for each combination. This method simplifies considerably the tabulation process and

permits definite association of combinations of answers. For instance, if the answer to the question "What have you been doing the last four weeks to find work?" can be:

"checked with state employment agency,"

"checked with private employment agency,"

"checked with employer directly," or

"checked with friends or relatives,"

these answers may be coded 1, 2, 4, and 8. To record a combination of 1 and 2, code 3 would be used; i.e., the sum of the code numbers assigned to 1 and 2. The coding of these items, both singly and in combination, would be, for example:

Code number	*Answer to question*
1	State employment agency only
2	Private employment agency only
3	State employment agency and private employment agency
4	Employer directly only
5	State employment agency and employer directly
6	Private employment agency and employer directly
7	State employment agency, private employment agency, and employer directly

Among the many other coding systems, we shall mention only a few. The simplest form of coding is the sequence method, in which code numbers are assigned to answers in no particular order, provided there are not more than 20 or 30 items, on the assumption that no additional analysis of the categories is anticipated. In this case, a group classification code would be more appropriate. In such a code, major and minor classifications are represented by succeeding digits of the assigned numbers. This is the most efficient code for ordinary coding problems. The industry and occupation codes are examples of group classification codes. For example, the code for mining is 1; for metal mining 10; for mining of iron ore, 1011. Or the code for mining is again 1; crude petroleum and natural gas, 13; natural gas liquids, 1321.

A coding device aimed at economizing space is the block code which utilizes groups or blocks of numbers in sequence to represent classifications. These blocks are not arranged according to tens, hundreds, or thousands, but according to any desired number of units. Block coding may be used to advantage where there is a restriction on the number of digits or when cardsorting is an important consideration.

A variation is the use of one card column to record the answers to several questions, such as male or female, code 1 or 2; income group A, code 4; income group B, code 5; income group C, code 6; income group D, code 7. Thus, if a respondent were a male falling into income group B, two code numbers would be punched in the column; namely, 1 and 5.

Where detailed tabulations by industry or occupation are desired, appropriate coding should be undertaken separately or by special coders. For both the industry and the occupation classification, depending on the desired level of detail of classification, the survey must provide adequate questions to obtain responses that lend themselves to coding in categories on the level of specificity desired. The problems which are thus raised are difficult ones; and the actual classification, even if the responses are correct and complete, is a difficult undertaking for trained coders. The census codes may serve as guidelines here,[5] but they are more detailed than necessary for most studies of this nature (see Exhibits 9 and 10). There are several methods by which codes can be entered. Apart from the precoded questionnaire already referred to, where the interviewer or respondent merely marks the appropriate printed number by circling it, the usual procedure is to write the code symbol on the questionnaire. Sometimes boxes for codes are provided on the questionnaire directly, linked to items by numbers; this saves time and reduces the probability of transcription errors (see appendix questionnaires). Disadvantages of putting the code on the original form are lack of space and crowding of entries.

Another common procedure is for the interviewer to enter the code symbols on the questionnaire shortly after the interview. This can be facilitated, as already mentioned, by printing the relevant codes at the bottom or in the right margin of the questionnaire. The interviewer has to record, as a rule, only these code numbers.

Pretesting the Questionnaire

After the questionnaire has been designed, pretests will prove helpful. A few questionnaires or interviews, which need not be given to a random sample, would be sufficient in most situations, as long as the sample includes the different types of respondents. Those conducting the pretests should be thoroughly familiar with the objective of the study and with the specific aims of each question. After the pretests, interviewers should discuss the questionnaire with the respondents to find out whether the questions had the intended meaning for them. They should record respondents' reactions and possible suggestions, together with their own comments and critical evaluations. In so doing, they

[5] *Census of Population: Alphabetical Index of Industries and Occupations* (Washington: 1970).

Exhibit 9

INDUSTRY CODE

DEPARTMENT OF COMMERCE
Bureau of the Census
Washington, D.C. 20233

January 1971

1970 Census of Population
Industrial Classification

(Numbers in parentheses are the SIC code equivalents)

Census Code	
	AGRICULTURE, FORESTRY, AND FISHERIES
017 (A)	Agricultural production (01)
018	Agricultural services, except horticultural (07 except 0713 and 073)
019	Horticultural services (073)
027	Forestry (08)
028	Fisheries (09)
029	Agriculture, forestry, and fisheries—allocated
	MINING
047	Metal mining (10)
048	Coal mining (11, 12)
049	Crude petroleum and natural gas extractions (13)
057	Nonmetallic mining and quarrying, except fuel (14)
058	Mining—allocated
	CONSTRUCTION
067	General building contractors (15)
068	General contractors, except building (16)
069 (B)	Special trade contractors (17)
077	Not specified construction
078	Construction—allocated
	MANUFACTURING
	Durable goods
	Lumber and wood products, except furniture
107	Logging (241)
108	Sawmills, planing mills, and mill work (242, 243)
109	Miscellaneous wood products (244, 249)
118	Furniture and fixtures (25)
	Stone, clay, and glass products
119	Glass and glass products (321-323)
127	Cement, concrete, gypsum, and plaster products (324, 327)
128	Structural clay products (325)
137	Pottery and related products (326)
138	Miscellaneous nonmetallic mineral and stone products (328, 329)
	Metal industries
139	Blast furnaces, steel works, rolling and finishing mills (3312, 3313)
147	Other primary iron and steel industries (3315-3317, 332, 3391, part 3399)
148	Primary aluminum industries (3334, part 334, 3352, 3361, part 3392, part 3399)
149	Other primary nonferrous industries (3331-3333, 3339, part 334, 3351, 3356, 3357, 3362, 3369, part 3392, part 3399)
157	Cutlery, hand tools, and other hardware (342)
158	Fabricated structural metal products (344)
159	Screw machine products (345)
167	Metal stamping (346)
168	Miscellaneous fabricated metal products (341, 343, 347, 348, 349)
169	Not specified metal industries

Census Code	
	MANUFACTURING, *Durable goods (continued)*
	Machinery, except electrical
177	Engines and turbines (351)
178	Farm machinery and equipment (352)
179	Construction and material handling machines (353)
187	Metalworking machinery (354)
188	Office and accounting machines (357 except 3573)
189	Electronic computing equipment (3573)
197	Machinery, except electrical, n.e.c. (355, 356, 358, 359)
198	Not specified machinery
	Electrical machinery, equipment, and supplies
199	Household appliances (363)
207	Radio, T.V., and communication equipment (365, 366)
208	Electrical machinery, equipment, and supplies, n.e.c. (361, 362, 364, 367, 369)
209	Not specified electrical machinery, equipment, and supplies
	Transportation equipment
219	Motor vehicles and motor vehicle equipment (371)
227	Aircraft and parts (372)
228	Ship and boat building and repairing (373)
229	Railroad locomotives and equipment (374)
237	Mobile dwellings and campers (3791)
238	Cycles and miscellaneous transportation equipment (375, 3799)
	Professional and photographic equipment, and watches
239	Scientific and controlling instruments (381, 382)
247	Optical and health services supplies (383, 384, 385)
248	Photographic equipment and supplies (386)
249	Watches, clocks, and clockwork-operated devices (387)
257	Not specified professional equipment
258	Ordnance (19)
259	Miscellaneous manufacturing industries (39)
267	Manufacturing, durable goods—allocated
	Nondurable goods
	Food and kindred products
268	Meat Products (201)
269	Dairy products (202)
278	Canning and preserving fruits, vegetables, and sea foods (203)
279	Grain-mill products (204, 0713)
287	Bakery products (205)
288	Confectionery and related products (207)
289	Beverage industries (208)
297	Miscellaneous food preparation and kindred products (206, 209)
298	Not specified food industries

Exhibit 9
INDUSTRY CODE (continued)

Census Code	
	MANUFACTURING, *Nondurable goods (continued)*
299	Tobacco manufactures (21)
	Textile mill products
307	Knitting mills (225)
308	Dyeing and finishing textiles, except wool and knit goods (226)
309	Floor coverings, except hard surface (227)
317	Yarn, thread, and fabric mills (221-224, 228)
318	Miscellaneous textile mill products (229)
	Apparel and other fabricated textile products
319 (C)	Apparel and accessories (231-238)
327	Miscellaneous fabricated textile products (239)
	Paper and allied products
328	Pulp, paper, and paperboard mills (261-263, 266)
329	Miscellaneous paper and pulp products (264)
337	Paperboard containers and boxes (265)
	Printing, publishing, and allied industries
338	Newspaper publishing and printing (271)
339	Printing, publishing, and allied industries, except newspapers (272-279)
	Chemicals and allied products
347	Industrial chemicals (281)
348	Plastics, synthetics and resins, except fibers (282, except 2823 and 2824)
349	Synthetic fibers (2823, 2824)
357	Drugs and medicines (283)
358	Soaps and cosmetics (284)
359	Paints, varnishes, and related products (285)
367	Agricultural chemicals (287)
368	Miscellaneous chemicals (286, 289)
369	Not specified chemicals and allied products
	Petroleum and coal products
377	Petroleum refining (291)
378	Miscellaneous petroleum and coal products (295, 299)
	Rubber and miscellaneous plastic products
379	Rubber products (301-303, 306)
387	Miscellaneous plastic products (307)
	Leather and leather products
388	Tanned, curried, and finished leather (311)
389	Footwear, except rubber (313, 314)
397	Leather products, except footwear (312, 315-317, 319)
399	Manufacturing, nondurable goods—allocated
398	*Not specified manufacturing industries*
	TRANSPORTATION, COMMUNICATIONS, AND OTHER PUBLIC UTILITIES
	Transportation
407 (D)	Railroads and railway express service (40)
408	Street railways and bus lines (411, 413-415, 417)
409	Taxicab service (412)
417	Trucking service (421, 423)
418	Warehousing and storage (422)
419	Water transportation (44)
427	Air transportation (45)
428	Pipe lines, except natural gas (46)
429	Services incidental to transportation (47)
	Communications
447	Radio broadcasting and television (483)
448	Telephone (wire and radio) (481)
449	Telegraph and miscellaneous communication services (482, 489)

Census Code	
	TRANSPORTATION, COMMUNICATIONS, AND OTHER PUBLIC UTILITIES (continued)
	Utilities and sanitary services
467	Electric light and power (491)
468	Electric-gas utilities (493)
469	Gas and steam supply systems (492, 496)
477	Water supply (494)
478	Sanitary services (495)
479	Other and not specified utilities (497)
499	Transportation, communications, and other public utilities—allocated
	WHOLESALE AND RETAIL TRADE
	Wholesale trade
507	Motor vehicles and equipment (501)
508	Drugs, chemicals, and allied products (502)
509	Dry goods and apparel (503)
527	Food and related products (504)
528	Farm products—raw materials (505)
529	Electrical goods (506)
537	Hardware, plumbing, and heating supplies (507)
538	Not specified electrical and hardware products
539	Machinery equipment and supplies (508)
557	Metals and minerals, n.e.c. (5091)
558	Petroleum products (5092)
559	Scrap and waste materials (5093)
567	Alcoholic beverages (5095)
568	Paper and its products (5096)
569	Lumber and construction materials (5098)
587	Wholesalers, n.e.c. (5094, 5097, 5099)
588	Not specified wholesale trade
599	Wholesale trade—allocated
	Retail trade
607	Lumber and building material retailing (521-524)
608	Hardware and farm equipment stores (525)
609 (E)	Department and mail order establishments (531, 532)
617	Limited price variety stores (533)
618	Vending machine operators (534)
619	Direct selling establishments (535)
627	Miscellaneous general merchandise stores (539)
628 (F)	Grocery stores (541)
629	Dairy products stores (545)
637	Retail bakeries (546)
638	Food stores, n.e.c. (542-544, 549)
639	Motor vehicle dealers (551, 552)
647	Tire, battery, and accessory dealers (553)
648	Gasoline service stations (554)
649	Miscellaneous vehicle dealers (559)
657	Apparel and accessories stores, except shoe stores (56 except 566)
658	Shoe stores (566)
667	Furniture and home furnishings stores (571)
668	Household appliances, TV, and radio stores (572, 573)
669 (G)	Eating and drinking places (58)
677	Drug stores (591)
678	Liquor stores (592)
679	Farm and garden supply stores (596)
687	Jewelry stores (597)
688	Fuel and ice dealers (598)
689	Retail florists (5992)
697	Miscellaneous retail stores (593-595, 599 except 5992)
698	Not specified retail trade
699	Retail trade—allocated

Exhibit 9
INDUSTRY CODE (continued)

Census Code	
	FINANCE, INSURANCE, AND REAL ESTATE
707	Banking (60)
708	Credit agencies (61)
709	Security, commodity brokerage, and investment companies (62, 67)
717	Insurance (63, 64)
718	Real estate, incl. real estate-insurance-law offices (65, 66)
719	Finance, insurance, and real estate—allocated
	BUSINESS AND REPAIR SERVICES
727	Advertising (731)
728	Services to dwellings and other buildings (734)
729	Commercial research, development, and testing labs (7391, 7397)
737	Employment and temporary help agencies (736, 7398)
738	Business management and consulting services (part 7392)
739	Computer programing services (part 7392)
747	Detective and protective services (7393)
748	Business services, n.e.c. (732, 733, 735, 7394, 7395, 7396, 7399)
749	Automobile services, except repair (751, 752, 754)
757	Automobile repair and related services (753)
758	Electrical repair shops (762, 7694)
759	Miscellaneous repair services (763, 764, 769, except 7694)
767	Business and repair services—allocated
	PERSONAL SERVICES
769 (H)	Private households (88)
777	Hotels and motels (701)
778	Lodging places, except hotels and motels (702, 703, 704)
779	Laundering, cleaning, and other garment services (721, 727)
787	Beauty shops (723)
788	Barber shops (724)
789	Shoe repair shops (725)
797	Dressmaking shops (part 729)
798	Miscellaneous personal services (722, 726, part 729)
799	Personal services—allocated

Census Code	
	ENTERTAINMENT AND RECREATION SERVICES
807	Theaters and motion pictures (78, 792)
808	Bowling alleys, billiard and pool parlors (793)
809	Miscellaneous entertainment and recreation services (791, 794)
817	Entertainment and recreation services—allocated
	PROFESSIONAL AND RELATED SERVICES
828	Offices of physicians (801, 803)
829	Offices of dentists (802)
837	Offices of chiropractors (804)
838 (J)	Hospitals (806)
839	Convalescent institutions (8092)
847	Offices of health practitioners, n.e.c. (part 8099)
848	Health services, n.e.c. (807, part 8099)
849	Legal services (81)
857 (K)	Elementary and secondary schools (821)
858	Colleges and universities (822)
859	Libraries (823)
867	Educational services, n.e.c. (824, 829)
868	Not specified educational services
869	Museums, art galleries, and zoos (84)
877	Religious organizations (866)
878	Welfare services (part 867)
879	Residential welfare facilities (part 867)
887	Nonprofit membership organizations (861-865, 869)
888	Engineering and architectural services (891)
889	Accounting, auditing, and bookkeeping services (893)
897	Miscellaneous professional and related services (892, 899)
899	Professional and related services—allocated
	PUBLIC ADMINISTRATION
907	Postal service (part 9190)
917 (L)	Federal public administration (part 9190, 9490)
927	State public administration (9290)
937 (M)	Local public administration (9390)
947	Public administration—allocated
	WORKERS NOT CLASSIFIABLE BY INDUSTRY
997	Unemployed persons, last worked 1959 or earlier*
999	Industry not reported**

*Found in experienced civilian labor force universe only.

**Used for "Industry 5-years ago" item only.

Exhibit 10

1970 Census of Population
Occupation Classification

Census Code	
	PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS
001	Accountants
002	Architects
	Computer specialists
003	Computer programmers
004	Computer systems analysts
004	Computer specialists, n.e.c.
	Engineers
006	Aeronautical and astronautical engineers
010	Chemical engineers
011	Civil engineers
012	Electrical and electronic engineers
013	Industrial engineers
014	Mechanical engineers
015	Metallurgical and materials engineers
020	Mining engineers
021	Petroleum engineers
022	Sales engineers
023	Engineers, n.e.c.
024	Farm management advisors
025	Foresters and conservationists
026	Home management advisors
	Lawyers and judges
030	Judges
031	Lawyers
	Librarians, archivists, and curators
032	Librarians
033	Archivists and curators
	Mathematical specialists
034	Actuaries
035	Mathematicians
036	Statisticians
	Life and physical scientists
042	Agricultural scientists
043	Atmospheric and space scientists
044	Biological scientists
045	Chemists
051	Geologists
052	Marine scientists
053	Physicists and astronomers
054	Life and physical scientists, n.e.c.
055	Operations and systems researchers and analysts
056	Personnel and labor relations workers
	Physicians, dentists, and related practitioners
061	Chiropractors
062	Dentists
063	Optometrists
064	Pharmacists
065	Physicians, including osteopaths
071	Podiatrists
072	Veterinarians
073	Health practitioners, n.e.c.
	Nurses, dietitians, and therapists
074	Dietitians
075	Registered nurses
076	Therapists
	Health technologists and technicians
080	Clinical laboratory technologists and technicians
081	Dental hygienists
082	Health record technologists and technicians
083	Radiologic technologists and technicians
084	Therapy assistants
085	Health technologists and technicians, n.e.c.
	Religious workers
086	Clergymen
090	Religious workers, n.e.c.
	Social scientists
091	Economists
092	Political scientists
093	Psychologists
094	Sociologists
095	Urban and regional planners
096	Social scientists, n.e.c.
	Social and recreation workers
100	Social workers
101	Recreation workers
	Teachers, college and university
102	Agriculture teachers
103	Atmospheric, earth, marine, and space teachers
104	Biology teachers
105	Chemistry teachers
110	Physics teachers
111	Engineering teachers
112	Mathematics teachers
113	Health specialties teachers
114	Psychology teachers
115	Business and commerce teachers
116	Economics teachers
120	History teachers
121	Sociology teachers
122	Social science teachers, n.e.c.
123	Art, drama, and music teachers
124	Coaches and physical education teachers
125	Education teachers
126	English teachers
130	Foreign language teachers
131	Home economics teachers
132	Law teachers
133	Theology teachers
134	Trade, industrial, and technical teachers
135	Miscellaneous teachers, college and university
140	Teachers, college and university, subject not specified
	Teachers, except college and university
141	Adult education teachers
142	Elementary school teachers
143	Prekindergarten and kindergarten teachers
144	Secondary school teachers
145	Teachers, except college and university, n.e.c.
	Engineering and science technicians
150	Agriculture and biological technicians, except health
151	Chemical technicians
152	Draftsmen
153	Electrical and electronic engineering technicians
154	Industrial engineering technicians
155	Mechanical engineering technicians
156	Mathematical technicians
161	Surveyors
162	Engineering and science technicians, n.e.c.
	Technicians, except health, and engineering and science
163	Airplane pilots
164	Air traffic controllers
165	Embalmers
170	Flight engineers
171	Radio operators
172	Tool programmers, numerical control
173	Technicians, n.e.c.
174	Vocational and educational counselors
	Writers, artists, and entertainers
175	Actors
180	Athletes and kindred workers
181	Authors

Exhibit 10
1970 Census of Population Occupation Classification (continued)

Census Code	
	Writers, artists, and entertainers—continued
182	Dancers
183	Designers
184	Editors and reporters
185	Musicians and composers
190	Painters and sculptors
191	Photographers
192	Public relations men and publicity writers
193	Radio and television announcers
194	Writers, artists, and entertainers, n.e.c.
195	Research workers, not specified
196	Professional, technical, and kindred workers—allocated
	MANAGERS AND ADMINISTRATORS, EXCEPT FARM
201	Assessors, controllers, and treasurers; local public administration
202	Bank officers and financial managers
203	Buyers and shippers, farm products
205	Buyers, wholesale and retail trade
210	Credit men
211	Funeral directors
212	Health administrators
213	Construction inspectors, public administration
215	Inspectors, except construction, public administration
216	Managers and superintendents, building
220	Office managers, n.e.c.
221	Officers, pilots, and pursers; ship
222	Officials and administrators; public administration, n.e.c.
223	Officials of lodges, societies, and unions
224	Postmasters and mail superintendents
225	Purchasing agents and buyers, n.e.c.
226	Railroad conductors
230	Restaurant, cafeteria, and bar managers
231	Sales managers and department heads, retail trade
233	Sales managers, except retail trade
235	School administrators, college
240	School administrators, elementary and secondary
245	Managers and administrators, n.e.c.
246	Managers and administrators, except farm—allocated
	SALES WORKERS
260	Advertising agents and salesmen
261	Auctioneers
262	Demonstrators
264	Hucksters and peddlers
265	Insurance agents, brokers, and underwriters
266	Newsboys
270	Real estate agents and brokers
271	Stock and bond salesmen
280	Salesmen and sales clerks, n.e.c.
281	Sales representative, manufacturing industries
282	Sales representative, wholesale trade
283	Sales clerk, retail trade
284	Salesmen, retail trade
285	Salesmen of services and construction
296	Sales workers—allocated
	CLERICAL AND KINDRED WORKERS
301	Bank tellers
303	Billing clerks
305	Bookkeepers
310	Cashiers
311	Clerical assistants, social welfare
312	Clerical supervisors, n.e.c.
313	Collectors, bill and account
314	Counter clerks, except food
315	Dispatchers and starters, vehicle
320	Enumerators and interviewers
321	Estimators and investigators, n.e.c.

Census Code	
323	Expediters and production controllers
325	File clerks
326	Insurance adjusters, examiners, and investigators
330	Library attendants and assistants
331	Mail carriers, post office
332	Mailhandlers, exc. post office
333	Messengers and office boys
334	Meter readers, utilities
	Office machine operators
341	Bookkeeping and billing machine operators
342	Calculating machine operators
343	Computer and peripheral equipment operators
344	Duplicating machine operators
345	Key punch operators
350	Tabulating machine operators
355	Office machine operators, n.e.c.
360	Payroll and timekeeping clerks
361	Postal clerks
362	Proofreaders
363	Real estate appraisers
364	Receptionists
	Secretaries
370	Secretaries, legal
371	Secretaries, medical
372	Secretaries, n.e.c.
374	Shipping and receiving clerks
375	Statistical clerks
376	Stenographers
381	Stock clerk and storekeepers
382	Teacher aides, exc. school monitors
383	Telegraph messengers
384	Telegraph operators
385	Telephone operators
390	Ticket, station, and express agents
391	Typists
392	Weighers
394	Miscellaneous clerical workers
395	Not specified clerical workers
396	Clerical and kindred workers—allocated
	CRAFTSMEN AND KINDRED WORKERS
401	Automobile accessories installers
402	Bakers
403	Blacksmiths
404	Boilermakers
405	Bookbinders
410	Brickmasons and stonemasons
411	Brickmasons and stonemasons, apprentices
412	Bulldozer operators
413	Cabinetmakers
415	Carpenters
416	Carpenter apprentices
420	Carpet installers
421	Cement and concrete finishers
422	Compositors and typesetters
423	Printing trades apprentices, exc. pressmen
424	Cranemen, derrickmen, and hoistmen
425	Decorators and window dressers
426	Dental laboratory technicians
430	Electricians
431	Electrician apprentices
433	Electric power linemen and cablemen
434	Electrotypers and stereotypers
435	Engravers, exc. photoengravers
436	Excavating, grading, and road machine operators; exc. bulldozer
440	Floor layers, exc. tile setters
441	Foremen, n.e.c.
442	Forgemen and hammermen
443	Furniture and wood finishers

Exhibit 10
1970 Census of Population Occupation Classification (continued)

Census Code	
444	Furriers
445	Glaziers
446	Heat treaters, annealers, and temperers
450	Inspectors, scalers, and graders; log and lumber
452	Inspectors, n.e.c.
453	Jewelers and watchmakers
454	Job and die setters, metal
455	Locomotive engineers
456	Locomotive firemen
461	Machinists
462	Machinist apprentices
	Mechanics and repairmen
470	Airconditioning, heating, and refrigeration
471	Aircraft
472	Automobile body repairmen
473	Automobile mechanics
474	Automobile mechanic apprentices
475	Data processing machine repairmen
480	Farm implement
481	Heavy equipment mechanics, incl. diesel
482	Household appliance and accessory installers and mechanics
483	Loom fixers
484	Office machine
485	Radio and television
486	Railroad and car shop
491	Mechanic, exc. auto, apprentices
492	Miscellaneous mechanics and repairmen
495	Not specified mechanics and repairmen
501	Millers; grain, flour, and feed
502	Millwrights
503	Molders, metal
504	Molder apprentices
505	Motion picture projectionists
506	Opticians, and lens grinders and polishers
510	Painters, construction and maintenance
511	Painter apprentices
512	Paperhangers
514	Pattern and model makers, exc. paper
515	Photoengravers and lithographers
516	Piano and organ tuners and repairmen
520	Plasterers
521	Plasterer apprentices
522	Plumbers and pipe fitters
523	Plumber and pipe fitter apprentices
525	Power station operators
530	Pressmen and plate printers, printing
531	Pressmen apprentices
533	Rollers and finishers, metal
534	Roofers and slaters
535	Sheetmetal workers and tinsmiths
536	Sheetmetal apprentices
540	Shipfitters
542	Shoe repairmen
543	Sign painters and letterers
545	Stationary engineers
546	Stone cutters and stone carvers
550	Structural metal craftsmen
551	Tailors
552	Telephone installers and repairmen
554	Telephone linemen and splicers
560	Tile setters
561	Tool and die makers
562	Tool and die maker apprentices
563	Upholsterers
571	Specified craft apprentices, n.e.c.
572	Not specified apprentices
575	Craftsmen and kindred workers, n.e.c.
580	Former members of the Armed Forces
586	Craftsmen and kindred workers—allocated

Census Code	
	OPERATIVES, EXCEPT TRANSPORT
601	Asbestos and insulation workers
602	Assemblers
603	Blasters and powdermen
604	Bottling and canning operatives
605	Chainmen, rodmen, and axmen; surveying
610	Checkers, examiners, and inspectors; manufacturing
611	Clothing ironers and pressers
612	Cutting operatives, n.e.c.
613	Dressmakers and seamstresses, except factory
614	Drillers, earth
615	Dry wall installers and lathers
620	Dyers
621	Filers, polishers, sanders, and buffers
622	Furnacemen, smeltermen, and pourers
623	Garage workers and gas station attendants
624	Graders and sorters, manufacturing
625	Produce graders and packers, except factory and farm
626	Heaters, metal
630	Laundry and dry cleaning operatives, n.e.c.
631	Meat cutters and butchers, exc. manufacturing
633	Meat cutters and butchers, manufacturing
634	Meat wrappers, retail trade
635	Metal platers
636	Milliners
640	Mine operatives, n.e.c.
641	Mixing operatives
642	Oilers and greasers, exc. auto
643	Packers and wrappers, n.e.c.
644	Painters, manufactured articles
645	Photographic process workers
	Precision machine operatives
650	Drill press operatives
651	Grinding machine operatives
652	Lathe and milling machine operatives
653	Precision machine operatives, n.e.c.
656	Punch and stamping press operatives
660	Riveters and fasteners
661	Sailors and deckhands
662	Sawyers
663	Sewers and stitchers
664	Shoemaking machine operatives
665	Solderers
666	Stationary firemen
	Textile operatives
670	Carding, lapping, and combing operatives
671	Knitters, loopers, and toppers
672	Spinners, twisters, and winders
673	Weavers
674	Textile operatives, n.e.c.
680	Welders and flame-cutters
681	Winding operatives, n.e.c.
690	Machine operatives, miscellaneous specified
692	Machine operatives, not specified
694	Miscellaneous operatives
695	Not specified operatives
696	Operatives, except transport—allocated
	TRANSPORT EQUIPMENT OPERATIVES
701	Boatmen and canalmen
703	Busdrivers
704	Conductors and motormen, urban rail transit
705	Deliverymen and routemen
706	Fork lift and tow motor operatives
710	Motormen; mine, factory, logging camp, etc.
711	Parking attendants
712	Railroad brakemen
713	Railroad switchmen
714	Taxicab drivers and chauffeurs

Exhibit 10
1970 Census of Population Occupation Classification (continued)

Census Code	
715	Truck drivers
726	Transport equipment operatives—allocated
	LABORERS, EXCEPT FARM
740	Animal caretakers, exc. farm
750	Carpenters' helpers
751	Construction laborers, exc. carpenters' helpers
752	Fishermen and oystermen
753	Freight and material handlers
754	Garbage collectors
755	Gardeners and groundskeepers, exc. farm
760	Longshoremen and stevedores
761	Lumbermen, raftsmen, and woodchoppers
762	Stockhandlers
763	Teamsters
764	Vehicle washers and equipment cleaners
770	Warehousemen, n.e.c.
780	Miscellaneous laborers
785	Not specified laborers
796	Laborers, except farm—allocated
	FARMERS AND FARM MANAGERS
801	Farmers (owners and tenants)
802	Farm managers
806	Farmers and farm managers—allocated
	FARM LABORERS AND FARM FOREMEN
821	Farm foremen
822	Farm laborers, wage workers
823	Farm laborers, unpaid family workers
824	Farm service laborers, self-employed
846	Farm laborers, farm foremen, and kindred workers—allocated
	SERVICE WORKERS, EXC. PRIVATE HOUSEHOLD
	Cleaning Service Workers
901	Chambermaids and maids, except private household
902	Cleaners and charwomen
903	Janitors and sextons
	Food Service Workers
910	Bartenders
911	Busboys
912	Cooks, except private household
913	Dishwashers
914	Food counter and fountain workers
915	Waiters
916	Food service workers, n.e.c., except private household
	Health Service Workers
921	Dental assistants
922	Health aides, exc. nursing
923	Health trainees
924	Midwives
925	Nursing aides, orderlies, and attendants.
926	Practical nurses
	Personal Service Workers
931	Airline stewardesses
932	Attendants, recreation and amusement
933	Attendants, personal service, n.e.c.
934	Baggage porters and bell hops
935	Barbers
940	Boarding and lodginghouse keepers
941	Bootblacks
942	Child care workers, exc. private household
943	Elevator operators
944	Hairdressers and cosmetologists
955	Personal service apprentices
950	Housekeepers, exc. private household
952	School monitors
953	Ushers, recreation and amusement
954	Welfare service aides
	Protective Service Workers
960	Crossing guards and bridge tenders
961	Firemen, fire protection
962	Guards and watchmen
963	Marshals and constables
964	Policemen and detectives
965	Sheriffs and bailiffs
976	Service workers, exc. private household—allocated
	PRIVATE HOUSEHOLD WORKERS
980	Child care workers, private household
981	Cooks, private household
982	Housekeepers, private household
983	Laundresses, private household
984	Maids and servants, private household
986	Private household workers—allocated
	WORKERS NOT CLASSIFIABLE BY OCCUPATION
991	Unemployed persons, last worked 1959 or earlier

Source: Statistical Reporter, December 1969.

should keep in mind that written communications are appropriate for use by well-educated people. It may be more natural for less educated people to express themselves orally than in writing.

Where to draw a line between questionnaire and interview can be approximated by pretests. If significant changes are undertaken as a result of the pretest, a second pretest may be indicated. After completion of the pretests, final editing of the questionnaires may be undertaken to make the questions as clear and as easy to understand as possible.

Selection and Training of Enumerators and Interviewers

The key personnel in any survey operation are the enumerators and the interviewers; their contributions to survey results are hard to exaggerate. Since the work of interviewers is so important, much depends on their selection and training. An interviewer should be able to communicate easily with all types of people, should have a sympathetic interest in human beings, and should be honest and reliable. He should behave in a fashion which inspires confidence, and should have the ability to comprehend instructions and follow them faithfully. The interviewer's capacity to reason and to comprehend can be established by interview or by a simple test (see Exhibit 11).

Once accepted, the new recruits must be properly trained. A good training course for interviewers or enumerators will clarify the object and goal of the survey, demonstrate the importance of the study, and equip trainees with the

necessary skills to carry out their work properly. The training of enumerators should cover administrative matters. They need to be enlightened on all questions relating to the job: hours of work, sick leave, pay practices, etc.

A typical interviewer training course begins with an exposition of the purposes of the particular study. Its conceptual framework is then discussed. If the survey is of a nature that requires interview instructions, these are discussed and examined. After the trainees have been given the opportunity to raise questions, a mock interview of a group similar to the one the trainees are likely to encounter is demonstrated. Several do's and don'ts are presented, such as the necessity for always asking questions as worded, asking questions in order, and never leading the respondent. This may be implemented by role playing or by the use of tape recordings to illustrate the handling of difficult situations by an experienced interviewer.

To ensure that the survey process is well designed and controlled, it is imperative that instructions be supplemented by adequate supervision and control. This includes (1) the interviewing of some households by the supervisor to find out how complete and efficient the work of the interviewer has been and (2) procedures for reporting and correcting unsatisfactory fieldwork. In addition to these and other measures, the completed questionnaires should be carefully inspected, and the results of the inspection should serve to orient and reorient training materials and course content.

On-the-job training, a means by which trainees may conduct interviews under the surveillance of a supervisor, is another possibility. If necessary, a commercial interviewing service might be engaged. Such services are used by market research organizations not having their own field staffs. They most often employ women or retired men interested in part-time work. The use of such a service would seem preferable to some alternatives, such as the use of students.

Problems of Nonresponse

One tries to reduce noncooperation in mail questionnaires by seeing to it that the respondent is convinced that the project is important by printing a preparatory letter on the letterhead of a well-known agency and having it signed by

Exhibit 11

Field Employee Selection Aid

[Developed by the Bureau of the Census]

GENERAL INSTRUCTIONS

This test contains questions on arithmetic, vocabulary and following directions. You will have 30 minutes to finish the test. Work carefully and don't spend too much time on any one question. You are not expected to answer every question correctly. Read each question, choose the one correct answer, and mark its letter in the answer space by the question. Here is an example.

I. Multiply: 4 x 3
- A – 7
- B – 12
- C – 8
- D – 9
- E – None of these

I. Ans. B

The correct answer is 12, which is choice B. Notice that the letter B has been marked in the space by the question. Now try Example Question II. In the answer space mark the letter of the answer which best fits the meaning of the words in capital letters.

II. The Census Bureau will HIRE people to take the Census.
- A – help
- B – train
- C – employ
- D – want
- E – allow

II. Ans. C

The correct answer for this question is "employ," which is choice C. You should have marked the letter C in the answer space by Example Question II.

There is space on the test for you to use in solving the arithmetic problems.

DO NOT OPEN THIS BOOKLET UNTIL TOLD TO DO SO BY THE EXAMINER

Part 1 — ARITHMETIC

USE THE SPACE BELOW FOR FIGURING

1. Subtract: 3002
   −98

   A – 3004
   B – 2914
   C – 3100
   D – 2904
   E – None of these

   1. Ans. _____

2. Add: 10.6 plus 1.05 plus 360.0

   A – 370.1
   B – 471
   C – 470.11
   D – 371.65
   E – None of these

   2. Ans. _____

3. Multiply: 39 x 26

   A – 904
   B – 914
   C – 1014
   D – 1004
   E – None of these

   3. Ans. _____

4. Add: 132
   561
   454
   +104

   A – 1151
   B – 1251
   C – 1241
   D – 1141
   E – None of these

   4. Ans. _____

Part 2 — FOLLOWING DIRECTIONS

Some of these questions ask you to look at an example before answering the question. Read each question carefully, look at the example, choose the correct answer, and mark the letter in the answer space.

Col. 1 NAME OF EACH PERSON
who was living here on Tuesday, September 26, 1967 or who was staying or visiting here and had no other home.

Line No. — *Write names in this order*:
Head of the household
Wife of head
Unmarried children, oldest first
Married children and their families
Other relatives of the head
Persons not related to the head

① Last name ____ First name ____ Middle initial ____

② Last name ____ First name ____ Middle initial ____

③ Last name ____ First name ____ Middle initial ____

④ Last name ____ First name ____ Middle initial ____

⑤ Last name ____ First name ____ Middle initial ____

Refer to the example of Column 1 above.

This family consists of Mr. Ted Jones, his son Billy aged 3, his daughter Maria aged 9, a lodger, Mr. Rod Williams, and Mr. Jones' niece, Betty Jones aged 10. When the family is listed in Column 1 —

5. The name on line 2 should be
   A – Rod Williams
   B – Betty Jones
   C – Ted Jones
   D – Billy Jones
   E – Maria Jones

   5. Ans. _____

6. The name on line 5 should be
   A – Rod Williams
   B – Betty Jones
   C – Ted Jones
   D – Billy Jones
   E – Maria Jones

   6. Ans. _____

H13. *Answer this question if you pay rent for living quarters.*
a. If you pay rent by the month — What is your monthly rent?

	Hundreds	Tens	Units
$			
0	○	○	○
1	○	○	○
2	○	○	○
3	○	○	○
4	○	○	○
5	○	○	○
6	○	○	○
7	○	○	○
8	○	○	○
9	○	○	○

(Enter the monthly rent to the nearest dollar in the boxes. Then fill the proper circles. If your monthly rent is less than $100, fill the circle on the zero line in the "Hundreds" column and fill the appropriate circles in the "Tens" and "Units" columns; for example, if the monthly rent is $75, enter 075 in the boxes and fill zero in the "Hundreds" column, 7 in the "Tens" column, and 5 in the "Units" column.)

b. If you do not pay rent by the month—
What is your rent, and what period of time does it cover?
$ 25 per Week
(Nearest dollar) *(Week, half-month, year, etc.)*

Refer to sample census question H13 above.

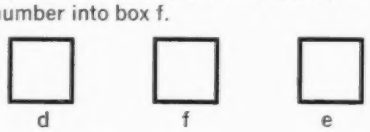
7. Why is Part b of this question answered and Part a not answered?
   A – The person forgot to answer Part a
   B – He owns his home
   C – He does not know how much the rent is
   D – He does not pay rent by the month
   E – There is no way to tell

   7. Ans. _____

8. Here are some numbers:

   49 38 63 55 36 31 52 45

   Put the above numbers in numerical order from smallest to largest. Then copy the fourth number into box e, the second number into box d, and the seventh number into box f.

   
   d f e

   The number you get is:
   A – 385255
   B – 364555
   C – 365545
   D – 453655
   E – None of these

   8. Ans. _____

Part 2 — FOLLOWING DIRECTIONS — Continued

Below is a question from a Census questionnaire. The person's answer has been indicated by a black mark.

20. When was this person born?
- ○ Born before April 1953 — *(Please go on with questions 21 through 35)*
- ● Born April 1953 or later — *(Please omit questions 21 through 35 and go to the next page for the next person)*

9. According to the instructions given in the questionnaire example above, the next question that this person should answer is:

A – 22
B – 35
C – 21
D – None of these

9. Ans. _____

10. If the first answer to the questionnaire example above had been marked, the next question for this person would be:

A – 22
B – 35
C – 21
D – None of these

10. Ans. _____

Line No.	Follow-up instructions
1	C
2	C
3	C
4	PV
5	C
6	T
7	
8	T
9	PV
10	
11	C

This is an example from a Census enumerator's assignment book showing him whether or not each household sent back a Census form.

This is what the letters mean:

C — Questionnaire returned complete — no visit required.

T — Questionnaire returned with missing information — telephone the household (no visit required).

PV — Questionnaire returned with missing information — personally visit the household yourself.

BLANK — No questionnaire returned — visit the household.

Refer to example above for questions 11-12.

11. Each line represents one household. How many households should be visited?

A – 7
B – 11
C – 4
D – 9
E – 10

11. Ans. _____

12. How many forms were returned?

A – 2
B – 8
C – 11
D – 10
E – 9

12. Ans. _____

Part 3 — PROBLEMS

For each problem choose the one correct answer, and mark its letter in the answer space.

For problems 13-14 use the following information:
To get the average monthly cost of water, figure the total yearly cost and divide by 12.

13. Every three months Mr. Jackson gets a water bill of $27. What is his average monthly cost for water?

A – $36
B – $ 9
C – $ 3
D – $ 4
E – None of these

13. Ans. _____

14. Twice a year, Betty Johnson gets a water bill of $24. What is her average monthly cost for water?

A – $ 4
B – $ 2
C – $48
D – $24
E – None of these

14. Ans. _____

15. Mrs. Wilson interviewed 56 households in her own assignment. She also finished Mrs. Martin's assignment after Mrs. Martin was called out of town. There were 65 households in Mrs. Martin's assignment and Mrs. Martin had interviewed 42 of them before she left. How many households did Mrs. Wilson interview altogether?

A – 56
B – 98
C – 121
D – 107
E – None of these

15. Ans. _____

To answer problem 16 use the following information.
To change yearly rent to monthly rent, you must divide the yearly figure by 12.

16. Mr. Black reports his yearly rent as $1,680. What is his monthly rent?

A – $143
B – $132
C – $140
D – $396
E – None of these

16. Ans. _____

17. Mrs. Jones can't remember the year of her birth but she knows that she was born in the month of April. If it is now May 1967, and Mrs. Jones tells you she is 78 years old, in what year was she born?

A – 1878
B – 1889
C – 1879
D – 1900
E – None of these

17. Ans. _____

USE THE SPACE BELOW FOR FIGURING

Part 4 — VOCABULARY

For each question choose the one answer which best fits the meaning of the word in capital letters, and mark its letter in the answer space.

18. The LIMITS of the area within which you are to take the Census are shown on a map which will be given to you.

A – latitudes
B – longitudes
C – surroundings
D – contours
E – boundaries

18. Ans. _____

19. He was RELUCTANT to answer the question.

A – unhappy
B – unable
C – unwilling
D – pleased
E – annoyed

19. Ans. _____

20. Census information remains CONFIDENTIAL.

A – important
B – secret
C – essential
D – interesting
E – reliable

20. Ans. _____

21. John gets $50 a week in WAGES.

A – dividends
B – rent
C – bonds
D – pay
E – interest

21. Ans. _____

22. Do not PERMIT anyone but Census employees to see the forms.

A – encourage
B – command
C – forbid
D – require
E – allow

22. Ans. _____

23. The building will be DEMOLISHED in two weeks.

A – constructed
B – replaced
C – destroyed
D – repaired
E – erected

23. Ans. _____

24. People should report their EXACT date of birth.

A – estimated
B – own
C – relative
D – precise
E – approximate

24. Ans. _____

25. The respondents DISCLOSED all of the facts.

A – denied
B – revealed
C – concealed
D – heard
E – discerned

25. Ans. _____

Part 5 — READING

Read the statements, choose the one correct answer for each question, and mark its letter in the answer space.

Questions 26 through 27 refer to the following statements.

Include only the following persons in each housing unit:

a. Members of the household living at home.

b. Members of the household temporarily absent, on vacation, visiting, or on business.

c. Newborn babies, born before April 1, who have not yet left the hospital.

d. Boarders or lodgers who regularly sleep in the housing unit.

Following these rules, should you include (count) each of the people below in the housing unit?

26. A cousin staying only for overnight

A – Yes, should include

B – No, should not include

26. Ans. _____

27. A husband away for a two weeks' business trip

A – Yes, should include

B – No, should not include

27. Ans. _____

Questions 28 through 30 refer to the following statement:

"Group quarters" are living arrangements for institutional inmates and for groups of five or more persons unrelated to the head of the household or the person in charge.

According to the above rule, are the following "group quarters"?

28. A house where three brothers and five unrelated friends live

A – Yes

B – No

28. Ans. _____

29. A private hospital

A – Yes

B – No

29. Ans. _____

30. A home with a married couple and four lodgers

A – Yes

B – No

30. Ans. _____

a well-known person. The questionnaire should be attractively printed and kept simple; first class mail should be used in sending it. Possibly nonresponses should be subsampled so as to enable the surveyor to pursue reluctant respondents with more costly forms of followup; resisting respondents could be approached by telephone, telegram, or personal interview.

To minimize nonresponse to interviews, send preview letters and announce the survey in the press and other media; use well-trained interviewers; arrange calls at the convenience of respondents; allow many callbacks; and make arrangements for interpreters where appropriate. If the reason for nonresponse is failure to find anyone at home, the usual procedure is to plan on callbacks. Every effort should be made to obtain an interview; two or three callbacks will, in general, produce good results.

If the noninterview rate turns out to be objectionably large, it may be best to make intensive efforts toward interviewing a subsample of the nonrespondents and adjust the findings accordingly. Where the respondents are not cooperating readily, or where interviews are difficult to obtain or too costly, a method developed by Politz and Simmons merits attention.[6]

Partial nonresponse; i.e., noncompletion of an answer to a particular question, is an important cause of the missing data problem. Such partial nonresponse may be due either to the respondent's not knowing the answer or to his not wishing to answer.

Inability of a respondent to answer a particular question is usually a sign of an unrealistic, and hence deficient, question which should have been caught during the pretest. Sometimes an answer may be obtained at this late point with the help of a specially trained interviewer who may be able to explain the question and assist in the preparation of an answer.

Refusal to answer may be due to the differences in the natures of the respondents, to their attitudes toward the sponsoring agency, or to the nature of the question. There are, of course, intercultural dissimilarities and differences between social classes which account for unwillingness to participate in a survey, and there are differences in temperament ranging from zealously helpful to fundamentally antagonistic. People will report differently in different surveys because they do not distinguish between information and what they believe to be its ultimate use. Survey auspices will therefore be important, and so will the survey approach by the interviewer.

[6]Alfred Politz and Willard Simmons, "An Attempt to Get the 'Not at Homes' into the Sample without Callbacks," *Journal of the American Statistical Association,* March 1949, pp. 9-31. Callbacks are avoided completely; only first calls are made. Each person in the sample who is visited at randomly selected points of time is asked how often during the past five days he or she was at home at the time of day the call was made. If the answer is R times, this respondent gets a rate of $\frac{6}{R+1}$. If R turns out to be one, the rate of this respondent is $\frac{6}{1+1} = 3$; if R turns out to be two for another respondent, the weight of this questionnaire turns out to be $\frac{6}{2+1} = 2$, etc. The completed questionnaires are sorted according to the number of times the persons were at home during the specified time of the call. Six groups of questionnaires are thus obtained, the first representing persons who were at home at the specified time only the day that the interviewer called; the second group representing those who were at home when the interviewer called, and, in addition, one more day during the past five days at the specified time; and the last group representing those persons who were at home six times at the specified time.

Estimates of population totals, averages, or proportions are thus obtained by weighting the response by the inverse of the ratio of times the respondents in the corresponding group were at home during the specified time of call. The more frequently a person was at home, the less the consequent weight.

VII. Sampling and the Survey Staff

The survey director should be prepared to answer a few questions which the sampling statistician is likely to raise. What is the definition of the population for which estimates are to be prepared? What is the geographic coverage, and what is the time for which estimates are to be made? Is the survey an isolated undertaking, or are several survey waves envisaged; if so, what is the timetable for these several waves? The purpose of this chapter is to acquaint the person responsible for the survey with the basic vocabulary of the sampling statistician and with the fundamentals of the conceptual framework within which sampling takes place. If the person conducting the survey is familiar with sampling terminology and with the problems facing the sampler, he will be able to make recommendations regarding a sampling plan and related survey operations.

Sampling is a highly technical discipline, requiring not only a good deal of theoretical underpinning, but also considerable practice and experience. The primary concern of the sampling statistician lies in the careful selection of a portion of the total population and in the determination of measurements (the mean, the median, the standard deviation, etc.) for this sample so that the measurements, based on the sample and known as *statistics*, can then be used to estimate the mean, median, standard deviation, etc., (called *parameters*) for the total population.

The Population and Its Elementary Units

The population is thought of as being composed of elements or elementary units; i.e., the smallest units yielding information which is being sought. The elementary unit may be a household, a plant, an establishment, a block, or a county. The population will then be comprised of selected, defined elementary units; e.g., plants employing 10 or more persons, establishments in a given three-digit SIC group, blocks in a city, counties in a state, and so on.

Hence, to define a population, we must know the kinds of elementary units of which it is comprised and the criteria for including them. If observations are to be made on these elementary units, they need to be well described so that they can be physically identified. Elementary units or elements have characteristic attributes or measurements. For example, if the elementary unit is a member of the labor force, the attributes may be total income, percent of income spent on food, attitude towards one's job, or the sex of the worker. A well-defined unit might be (1) a male, (2) employed in a manufacturing establishment (3) in Kalamazoo, (4) any time during the week of June 7, 1970, who was (a) enjoying his work, or (b) spending 30 percent of his income on food, or (c) earning between $8,000 and $9,000 per year.

When each elementary unit has been provided with an identification number (or has been otherwise identified), we call that population and its identifying scheme the "frame." The operational bridge that leads from the population to the selection of a probability sample (the first process in sampling) is the sampling frame, or the list of identifiable elementary units which exhausts the population. It is the already available information on the population—the list, map, or other specification of units. From the same population there may originate several frames. For two frames to be identical, they must refer to the same elementary units of the same population. Therefore, it is important that the population be precisely defined along with its frame of reference.

Elementary units are contained in the sampling units which define the population. If each sampling unit contains one element only, we speak of element sampling; in other forms of sampling, such as cluster sampling, each sampling unit may contain several elements. In multistage sampling, a whole rank order of sampling units exists; one corresponds to each stage, with the large ones, called primary sampling units (PSU's), at the first stage and with the smallest ones, the ultimate sampling units (USU's), at the last stage. In multistage sampling, then, there is a frame corresponding to each sampling stage; it is therefore possible to limit the known detail of higher order frames to the selected lower stage areas or units only, and to save thereby the effort and cost of making a complete enumeration for the purpose of obtaining a frame on the last of the ultimate sampling units.

Since the frame is the vehicle for selecting the sample from the population, its quality will have a far-reaching effect on the survey; any of its weaknesses or defects will affect the sample. In addition, the survey method suitable for a given frame may be quite different from the one that appears appropriate for another frame, so the detailed planning of the survey should wait until a comprehensive description of the available frame has been obtained and carefully appraised. This is another area, in addition to the definition of the population and elementary units, where the advice of the survey director can be of major assistance.

The primary frame defects for which to be on the lookout are (1) incompleteness or missing elements and (2)

duplicate listings. These problems can, of course, be avoided if the population can be redefined to fit the frame. Other ways of dealing with defective frames exist, but they are laborious and may be quite a bit more expensive. A great deal of experience and imaginative effort, closely associated with familiarity with the subject matter, may go into the discovery and preparation of a suitable frame.

Choosing the Sampling Design

Once a satisfactory frame has been developed, the sample may be selected. There are a great many sampling designs and processes available to the sampling statistician when he is ready to choose a design for a given situation. With modifications and combinations, the number of available and possible sampling plans increases greatly. Based on the foundations of probability theory, and considering the need for finding a solution to the problem of estimation, the sampler may propose a sampling design or a specific selection process by which units can be selected from the frame with known probability. The resulting sample is sometimes referred to as a probability sample, and the sampling as *scientific* sampling.

Such sampling differs from judgment selection, in which the units come into the sample on the basis of some other decision. An example of judgment or purposive selection is quota sampling and self-selection. Whatever the attractions of such a sample selection process, we cannot use the measurements so derived to estimate parameters for the total population. Therefore, the use of scientific sampling for estimating manpower statistics is of primary concern.

Let us now briefly discuss the objective of the design; i.e., its ability to produce information needed for the estimation of the population value. Once a sample has been selected *with known probability*, the problem of passing from the statistic (a measurement of the sample) to the parameter (a measurement of the population) must be faced. The sampler refers to a mathematical formula or expression which uses the statistic as an estimator of the parameter. Thus, the sample mean can serve the statistician as an estimator of the population mean. Frequently used criteria of the quality of an estimator are its unbiasedness, efficiency, sufficiency, and consistency.

Unbiasedness—a long-run property of an estimator[1]—simply means that, if a given estimation procedure were used many times, the numerical values, derived by using the estimator, when plotted as points on a graph, would cluster more and more closely about the parameter value.

Any one estimate may, of course, differ quite considerably from the population value. We therefore need a criterion which takes into consideration the degree of variability of the estimator. Such a measure is efficiency. A more efficient estimator has a smaller variance (deviation from the average of all possible values); it therefore is a more precise tool for estimating a parameter.

Sufficiency is the property of an estimator which uses all the information a sample contains about the parameter to be estimated. No other estimator of the parameter can add any further information.

The last of the criteria—consistency—means that, as the sample size increases, the probability of the estimate's equaling the parameter approaches certainty, or one.

Since estimators not only vary with a particular measure considered, but also are affected by the type of sampling design, it is evident that the choice of a *best* estimator involves complex computations and delicate decision problems. Therefore, an experienced sampler is needed, but a survey director familiar with the general aspects of the sampling problem also has his place. The survey director is the person who can specify the population for which information is sought in terms of content, extent, and time; he can also assist in forming an opinion about the kinds of estimates and the precision required of them. He is familiar with the general survey budget within which the sampler has to develop his plan, which frequently is a decisive guideline affecting sample size and the kind of sample design.

After an estimate has been made, it is possible to evaluate its precision. In other words, it becomes possible to compute the magnitude of the sampling error if the estimate was derived via a probability sample. In that case, the sampler can derive the numerical value of the sampling error for given levels of risk by applying the rules of probability calculus, given the sample size, the variability, and the distribution of the characteristic in the population.

Although these few remarks oversimplify the real problems, it should be clear why the services of a seasoned sampling statistician are needed. Not only does he have to make a choice among a number of sampling plans, make necessary adjustments, and determine sample size, but also he has to supervise the frequently complex computations involved in the selection and application of an appropriate estimator and in the determination of the sampling error.

It should also be clear that the survey director should have a smattering of the sampling statistician's vocabulary so as to be in a position to provide important bits of information that only he, and not the sampler, can furnish.

Simple Random Sampling

By way of brief illustration, one basic scheme of selecting a sample is simple random selection. If the frame consists of N listings, we select n different numbers, where n is less than N ($n<N$), perhaps with the help of random numbers. Since the use of random numbers may be important in field work, the survey director should be familiar with the

[1]To be distinguished from "unbiased sample," which is a sample selected by a method free of bias, including any bias of nonresponse, of question design, of definition, of interview, etc.

elements of random number selection. It is the simplest way to obtain a probability sample, and is at the basis of most of the more complex selection methods. It is not haphazard selection. Quite the contrary, it implies a rigorous process equivalent to the mechanical procedures corresponding to the drawing of uniform chips from a bowl in a fair lottery. In other words, it is equally probable that any member of the population will be drawn, or that each combination of n subjects has the same chance of being selected as every other such combination. In practice this is achieved by using a table of random numbers which are more carefully constructed and tested than is possible by actually shuffling or mixing chips in a bowl.[2]

If we wish to select a random sample of size n from a list size M_1 where $n < M_1$, we take any page of the table of random numbers and select a starting digit by blindly pointing a finger at the page. For example, in Exhibit 12, let us use as a starting digit the 9 on line 14, column 20. If we want four-digit random numbers, two possibilities among many are: (1) reading horizontally from left to right, we obtain 9918, 2608, 9289, 3785, and then 6548 in line 15; (2) starting with 9918 and reading columnwise downward, we obtain 9918, 0580, 5453, etc. We can choose between any two possibilities by tossing a coin.

In survey practice, we usually assume that each element or number can be selected only once. In other words, we use the model of "sampling without replacement." In that case, we select random numbers from the table. Once they are selected, they are not returned to the pool of numbers; therefore, they cannot be chosen again. This is also referred to as simple random selection.

Suppose we wish to select a sample of 10 items from a population of 900, proceeding columnwise downward from item 991 (the first three digits from our previous illustration): First we discard item 991 since it is larger than 900; then we proceed to the next ones: 058, 545, 443, 836, 446, 646, 870, 432, 012, 440, and 451. In practice, we would of course, avoid a sample that small. It is used here for purposes of illustration only. In other words, we select from the table the required series of random numbers, discarding numbers in excess of the predetermined population size (900). Since it was decided to sample *without replacement*, random numbers already selected once are also discarded.

Simple random sampling (SRS), although not often found in practical sample designs, is nevertheless the foundation of most other "restricted" sampling plans based on probability sampling; i.e., sampling plans in which every element of the population has a known probability of being included in the sample. When each number not previously selected has a known and equal probability of being included in the sample, we are dealing with SRS, the kind of sampling we have just discussed.

Simple random sampling is important because of its elementary mathematical properties, because all other types of probability sampling may be regarded as restrictions or modifications imposed on SRS, and, finally, because considerations based on SRS may often be thought of as a base for the restricted sample design actually used. SRS, however, rarely occurs in the practice of the sample designer. For instance, lists of population elements are frequently not available; special groups within the population may be singled out for study, and a random sample from the entire population may not furnish an adequate number of cases in each group; or there may be information available on certain population characteristics which yields a degree of accuracy with a smaller size sample than is possible using SRS.

Among the many restricted sampling processes, we shall quite briefly describe the following three: stratified sampling, systematic sampling, and cluster sampling.

Stratified Sampling

Stratified sampling, most widely known and most popular among laymen, divides the population into subpopulations, or strata, which are then sampled separately and independently. From each of these separate samples, an estimate of the parameter is calculated for the independent strata. They are then merged to obtain one estimate for the overall population parameter. The function of stratified sampling is occasionally misinterpreted, and expected benefits are overrated.

Stratification is not an excuse for using nonprobability selection methods; nor is it a necessary condition for a satisfactory design; but it is frequently a profitable and easily applied process. Stratification may reduce the sampling variance; it may enable the use of different sampling methods for different strata; and it may make it possible to study separate subpopulations, in addition to the population as a whole, by assuring that satisfactory estimates for the subpopulation will be obtained.

Ideally, the characteristic used for stratification should be highly correlated with the phenomenon to be studied so that, while interstrata differences should be as pronounced as possible, greater uniformity is found within a single stratum. However, information about such population characteristics is frequently not available. Also, there is the problem, confronted in all multivariate studies, of choosing the variables having sufficient correlation with the criterion of stratification.

If proportional allocation of the sample to an individual stratum can be used; i.e., if the sampling function can be

[2]For useful tables of random numbers, the following should be mentioned: *A Million Random Digits* (Glencoe, Ill.: The Free Press, 1955); and *Cambridge Tables of Random Numbers*, Facts for Computers, No. 24, by Kendall and Babington-Smith (Cambridge, England: Cambridge University Press, 1954).

Exhibit 12

Random Digits*

Line No.	Columns 1-5	Columns 6-10	Columns 11-15	Columns 16-20	Columns 21-25	Columns 26-30	Columns 31-35
0	10097	32533	76520	13586	34673	54876	80959
1	37542	04805	64894	74296	24805	24037	20636
2	08422	68953	19645	09303	23209	02560	15953
3	99019	02529	09376	70715	38311	31165	88676
4	12807	99970	80157	36147	64032	36653	98951
5	66065	74717	34072	76850	36697	36170	65813
6	31060	10805	45571	82406	35303	42614	86799
7	85269	77602	02051	65692	68665	74818	73053
8	63573	32135	05325	47048	90553	57548	28468
9	73796	45753	03529	64778	35808	34282	60935
10	98520	17767	14905	68607	22109	40558	60970
11	11805	05431	39808	27732	50725	68248	29405
12	83452	99634	06288	98083	13746	70078	18475
13	88685	40200	86507	58401	36766	67951	90364
14	99594	67348	87517	64969	91826	08928	93785
15	65481	17674	17468	50950	58047	76974	73039
16	80124	35635	17727	08015	45318	22374	21115
17	74350	99817	77402	77214	43236	00210	45521
18	69916	26803	66252	29148	36936	87203	76621
19	09893	20505	14225	68514	46427	56788	96297
20	91499	14523	68479	27686	46162	83554	94750
21	80336	94598	26940	36858	70297	34135	53140
22	44104	81949	85157	47954	32979	26575	57600
23	12550	73742	11100	02040	12860	74697	96644
24	63606	49329	16505	34484	40219	52563	43651
25	61196	90446	26457	47774	51924	33729	65394
26	15474	45266	95270	79953	59367	83848	82396
27	94557	28573	67897	54387	54622	44431	91190
28	42481	16213	97344	08721	16868	48767	03071
29	23523	78317	73208	89837	68935	91416	26252
30	04493	52494	75246	33824	45862	51025	61962
31	00549	97654	64051	88159	96119	63896	54692
32	35963	15307	26898	09354	33351	35462	77974
33	59808	08391	45427	26842	83609	49700	13021
34	46058	85236	01390	92286	77281	44077	93910
35	32179	00597	87379	25241	05567	07007	86743
36	69234	61406	20117	45204	15956	60000	18743
37	19565	41430	01758	75379	40419	21585	66674
38	45155	14938	19476	07246	43667	94543	59047
39	94864	31994	36168	10851	34888	81553	01540
40	98086	24826	45240	28404	44999	08896	39094

*The Rand Corporation, *A Million Random Digits with 100,000 Normal Deviates* (Glencoe, Illinois: The Free Press, 1958). By permission.

made to be the same in all subpopulations, the resulting sample is a self-weighting one; and the calculation of estimates is greatly simplified since it is no longer necessary to weight the sample findings stratum by stratum. But, in many designs, rules for *optimum* allocation call for non-proportional samples. In such cases, the parameter will have to be obtained with the help of stratum-by-stratum weighting procedures, and the comfort of the self-weighting stratified sample is lost.

The benefits obtained from stratification are most pronounced if we are dealing with an asymmetrical population characteristic such as income, in which case we can allocate in a way that will produce as much uniformity as possible within strata and as little as possible between strata. On the other hand, stratification may have no beneficial effect if we are dealing with a sample from a symmetrical population. Of course, stratification may be inherent in the population, which may, by its very nature, be composed of administrative subgroups so that it is *stratified* by its very character—an important aspect if separate estimates are desired for such subpopulations.

Systematic Sampling

Another sampling plan used often, although it is not necessarily fully random, is systematic sampling, sometimes referred to as pseudo-random selection. Here, the elements come in some sequence to which numerical identifiers can be easily attached, or which, like documents in a file, have serial numbers connected with them. We select a random number between 1 and k (k is the sampling interval), and from this number count off every k. Thus, if $k=12$, and if the random start between 1 and k is 8, the sample would consist of items numbered 8, 20, 32, etc.

A systematic sample would be wholly random if the list of numbers in the population were entirely random. The nearest to such a random list is usually considered to be an alphabetic list of names. If the sampling error is estimated as if the sample were an entirely random one, although it is not, such an estimate will result in an exaggeration of the true error.

The great advantage of systematic selection is the ease with which it can be carried out. For example, it would be simple for the field staff to list each case, line, or block; and to choose every 8th, 20th, 32nd, etc., item from that list. Similarly, the ease with which systematic sampling yields a proportionate sample; e.g., by distributing dwellings of a block over its four sides, can hardly be overrated. Dangers inherent in systematic sampling against which the surveyor must guard are the possible presence of an evolutionary or an oscillatory component in the population list, both of which will cause the sampling error to increase greatly. This leads to exaggerated confidence in the results if this complication is ignored.

The first case is present when a salary file is made in ascending order of salaries. This may lead to an overestimate of mean salary by roughly the amount of salary corresponding to the worker at the random start.

The second case is present when a housing project is composed of identical structures of 10 dwellings each. In a systematic sample of every 10th dwelling, the dwelling unit would presumably be highly correlated with respect to size of family, number of children, income, and other characteristics. In general, when there exist fluctuations of period A in the sample list, sampling intervals of A or multiples of A should be avoided. In such situations, remedial action may consist of applying some shuffling procedure to the population list, or changing the random start. Any such modifications are, however, likely to interfere with the advantage of systematic selection—its simplicity.

As stated earlier, the responsibility for judgment in choosing the systematic process, with or without modifications, rests with the sampling statistician.

Cluster Sampling

Cluster sampling is of great interest to the practicing survey designer since it is the basis for an attempt to simplify greatly the task of prelisting dwellings in case, as occurs frequently, no lists are available. In cluster sampling, the material is thought of as being made up of a number of clusters; i.e., first-stage or primary sampling units (PSU's), each of which in turn is composed of second-stage units, etc., until the ultimate sampling unit, the elementary unit, is reached. The design discussed here is known as two-stage area sampling, and is a particular case of cluster sampling.

Cluster sampling is a process in which the sampling unit, or unit of selection, contains an entire cluster of elements. For instance, the population is subdivided into aggregates (clusters) of mutually exclusive and exhaustive elements. Thus, a sample of dwellings from a city can be obtained by grouping dwellings according to the city blocks where they are located, selecting a sample of blocks, prelisting all the dwellings in the selected blocks, and subsampling them. If the sampling elements are associated with the area in which they can be found, we speak of area sampling. The cluster, however, need not be defined on a geographic basis. Establishments might be the primary sampling units, and each establishment might then contain a cluster of individual employees.

Cluster sampling, unlike stratified sampling, will be effective if the differences within clusters are as large as possible and as small as feasible between clusters. In other words, each cluster should be, to the extent feasible, a "replica" of the population. The cluster sample makes a very desirable design where a frame (list) for the popula-

tion as a whole is needed but not available because it enables us to draw a sample of PSU's and prelist only the selected clusters.

In the practice of area sampling, clusters of dwellings, city blocks, or combinations of blocks are marked off on a city block map, keeping the clusters about equal size. Then they are numbered in serpentine fashion, going back and forth on the map; a random start is obtained and every k block selected according to rules of systematic selection, so that each cluster has a probability of $\frac{1}{k}$. Next, the k clusters are prelisted and out of each of the selected k clusters $\frac{1}{j}$ dwellings are chosen by using, again, a systematic sampling process.

Cluster sampling designs may, of course, be more complex. The clusters may be of clearly unequal size; the sampling processes may be multistage rather than merely two-stage; and the design may combine stratification with cluster sampling. Thus, the final estimation problem may be quite involved and intricate.

A Stratified Establishment Sample

Let us now assume that it is desired, within the context of a manpower forecasting study, to compare manpower anticipations of manufacturing employers with the subsequent actual size of manpower employed by establishments in a given standard metropolitan statistical area. Among other things, it is planned to find to what extent anticipations of managers of individual manufacturing establishments are related to those of manufacturing as a whole.

It is decided to gather information from an establishment sample, stratified by employment-size groups of establishments. For this purpose, the sampling statistician proposes a sample of about 500 establishments divided into four strata of 10-19, 20-99, 100-249, and 250 and over employees.

Suppose a satisfactory frame containing manufacturing establishments with indication of employment in addition to some other valuable information exists in Dun's Market Identifiers (DMI) printed on 3 x 5 cards (see Exhibit 13), as well as tabulating cards. Cards for the counties constituting the particular standard metropolitan statistical area would be obtained. Tabulating the cards by the four employment-size groups, we find that, e.g., for 14 establishments, no employment figures are indicated. We therefore secure the missing figures by personal interview to ascertain in which employment-size group the particular establishments fall. Assume that we end up with 2,172 establishment cards and that these cards fall into four employment-size groups: 980 into the 10-19 size group, the first stratum; 876 into the 20-99 group, the second stratum; 262 into the 100-249 group, the third; and 54 into the 250 and over group, the fourth.

The sampling statistician then recommends a sample of 1 out of 10 from the first stratum, 1 out of 4 from the second, 1 out of 2 from the third, and the entirety for the fourth stratum. From the first stratum, the sample is to be selected wholly randomly; from the next two strata, given the high sampling fraction, by systematic selection; and all 54 establishments are to be included in subpopulation four.

After identifying the 2,172 establishments in the population, perhaps by assigning serial numbers to them, we draw a random sample of 98 falling into the first subpopulation of 980, by using three-digit random numbers and rejecting numbers not falling into the sample or having already been drawn. Then we select a random start between 1 and 4, drawing every fourth establishment for the second stratum; and another random start between 1 and 2, drawing every second establishment for the third stratum. Including all 54 establishments in stratum 4, we have a sample of 502.

The next step is to decide to whom the questionnaire or the interview is to be directed. The frame is merely in terms of establishment names and addresses and the name of the chief executive. If the personnel or production manager is to be contacted, this fact should be expressly noted.

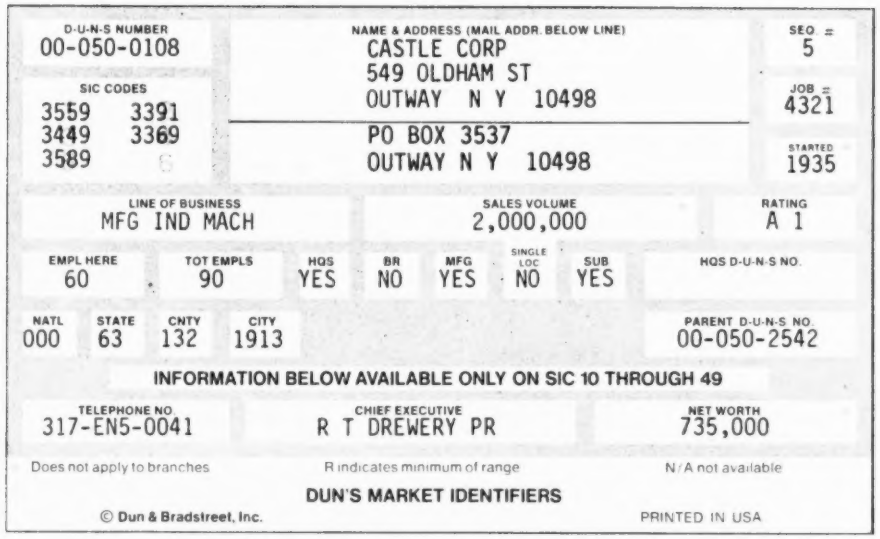
A Population Sample

A more complicated case than the drawing of an establishment sample from an establishment list is the selection of a population sample. Assume that a sample of persons 50 years of age and over is to be selected from the population of a metropolitan area to determine their economic circumstances, attitudes toward work, expectations concerning their labor force status, and retirement plans.

The sampling statistician considers the various angles of the project and the available resources before he proposes the sampling plan. Since no satisfactory listing of all addresses can be located, for instance, in the form of a complete and up-to-date city directory, he decides to recommend a two-stage area sample to reduce the listing job to only those areas selected for the sample. (A complete listing of the entire metropolitan area would be a fantastic undertaking just for use as a directory.) He therefore translates his problem into the application of a cluster sample in the first stage, the clusters being obtained from a city block map by forming clusters of roughly equal size in terms of population. After the clusters are formed, they are numbered serially in serpentine fashion, and a systematic sample is perhaps selected by beginning with the random start between 1 and S, the sampling interval, and from there on selecting every cluster corresponding to a succeeding sampling interval S. More involved selection procedures may, of course, be recommended by the sampler, among them stratification of clusters prior to selection, the clusters being selected with unequal probability.

Exhibit 13

Dun's Market Identifier Card



D-U-N-S NUMBER
00-050-0108

NAME & ADDRESS (MAIL ADDR. BELOW LINE)
CASTLE CORP
549 OLDHAM ST
OUTWAY N Y 10498

PO BOX 3537
OUTWAY N Y 10498

SEQ. =
5

JOB =
4321

STARTED
1935

SIC CODES
3559 3391
3449 3369
3589

LINE OF BUSINESS
MFG IND MACH

SALES VOLUME
2,000,000

RATING
A 1

EMPL HERE	TOT EMPLS	HQS	BR	MFG	SINGLE LOC	SUB	HQS D-U-N-S NO.
60	90	YES	NO	YES	NO	YES	

NATL	STATE	CNTY	CITY	PARENT D-U-N-S NO.
000	63	132	1913	00-050-2542

INFORMATION BELOW AVAILABLE ONLY ON SIC 10 THROUGH 49

TELEPHONE NO.
317-EN5-0041

CHIEF EXECUTIVE
R T DREWERY PR

NET WORTH
735,000

Does not apply to branches

R indicates minimum of range

N/A not available

DUN'S MARKET IDENTIFIERS

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Once the clusters have been selected and a list of selected clusters in identifiable form has been made available by the sampler, it is the field staff's job to record the addresses of dwellings in the selected clusters in order to produce the sampling frame. This function is usually called prelisting, or listing, and is the responsibility of the survey director and his staff. From this list of addresses of dwellings; i.e., places where people live, the final choice of dwelling units to be included in the sample is made.

The basic assumption upon which this type of area sampling of dwellings rests is the possibility of associating the particular characteristics of the population elements with dwellings, as is done, for instance, in sampling for human populations, for populations of domestic animals, and for furnishings which are typically connected with dwellings (like refrigerators, domestic air conditioners, etc.). To the extent that social mores and ruling technology of shelter make dwellings the predominant housing units for people, dwellings may serve the functions of a sampling frame for manpower surveys. To the extent that this is not so, because of the nonstandard way of living of considerable numbers of the relevant population, great caution must be exercised lest bias should creep into the description and analysis. This is to be considered, for instance, in studying problems of great poverty or of drug addiction.

Living quarters are divided into two major groups: housing units and group quarters. Housing units can be "conventional"; i.e., homes or apartments, living facilities over a store, or housing units in a structure converted into permanent-type living facilities; "mobile"; i.e., trailers, railroad cars, and houseboats; "improvised"; i.e., makeshift structures built of assorted scrap materials, such as squatters' homes.

Group quarters are "special dwelling places," such as correctional and mental institutions; homes for the aged, infirm, or needy; hospitals and homes providing specialized care; military installations; rooming, lodging, and boarding houses; facilities for housing students or workers; nurses' homes; convents and monasteries; transient hotels and vacation cabins; and tourist homes. Whether to include such special dwelling places will have to be decided on the basis of whether or not their occupants should be included in the survey. Since it is likely that places in which people live are correlated with some of their characteristics, attitudes, and attributes, the intentional or unintentional exclusion of certain categories of dwellings from the frame or listing may cause biases.

Once the question of inclusions and exclusions has been decided, the field staff is ready to proceed with the prelisting. We assume that the sampling statistician has provided the field staff with a map of identified small sampling areas, or clusters, usually composed of city blocks. Within the boundaries of these selected blocks, the field staff now lists or prelists all dwellings.

The persons who actually do the prelisting must be trained to exercise care in the prelisting process. They need to realize that the validity of the sampling, and hence of

the survey results, depends on the correctness and completeness of the prelisting.

The map of the sample areas which the sampling statistician provides for the field staff has, ideally, a detailed sketch of the area with all the buildings, structures, and houses. The lister verifies the sketch, makes corrections, and then begins the prelisting process. If the sampling statistician provides only the map of the sample areas, the lister must himself sketch the sample areas, including both dwelling and nondwelling units of all structures (see Exhibit 14).

Then the lister begins his prelisting job, starting with the north next to northwest corner of the block, marked with an *X* (see Exhibit 15). From here he proceeds in a clockwise direction so that the structures are to his right. The entire area of the sample block must be covered; intersecting streets, if any, must be covered as they happen to appear on a clockwise walk. Concurrently with the inspection, the lister fills in the listing record, one for dwellings and another for group quarters (special dwelling places) as shown in Exhibits 15 and 16. The entries (address and description) are made for each dwelling on a separate line on the listing record and in the same order that the dwellings are encountered on the clockwise walk. Care must be taken to locate obscured dwellings in the rear of other structures. In ascertaining the number of dwellings, the lister may be guided by such clues as door bells, mail boxes, and separate entrance doors; sometimes he may ask an individual living in the area.

In many structures, dwellings are already numbered. Where they are not, the following rules are useful for the order of listing: bottom floor to top floor; right side before left side; and front dwellings before rear dwellings. The ground or street floor is called first floor, whether or not it has dwellings; the first floor above the ground floor is called second floor, etc. In duplex houses, the right side precedes the left; if the two entrances are front and rear, the front precedes the rear.

For group quarters, a separate form may be provided. Here the lister lists each unit, one to a line; i.e., housing units or rooms and groups of rooms occupied as family quarters and group quarters in which occupants live collectively. Collective sleeping rooms are listed as separate dwelling units. If any room has sleeping facilities for more than six persons, it is usual to list each facility, or bed, separately as a dwelling. Much depends on the scope of the survey. Thus it may be decided to include in institutions only staff units, or units occupied by resident employees and their families, and to exclude nonstaff units; i.e., dwellings of persons for whom the group quarters are being operated; that is, inmates, patients, guests, etc.

In interviews of the adult population, it frequently happens that one wishes to interview only one person from each selected cluster of persons. In many of the selected households there may be only one qualifying person, but in others there may be two, three, or several. Interviewing more than one person might be inadvisable because the several respondents could overhear questions and answers or because of suspected high correlation among the answers of the several respondents of the same household. In such situations, there will be need for translating the sample households into a sample of the adult population, while preserving the probability character of the sample.

A simple semiautomatic procedure calls for the attachment to the questionnaire of a cover sheet for each sample dwelling record which contains address, list of household members, and a selection model. The interviewer lists, when first visiting the household, each adult separately in column 1 on one of the six lines in the form, identifying him by his relationship to the household head. In column 2 the interviewer records sex; in column 3, if needed, age.

Next, the interviewer assigns a serial number to each adult, first to the males in order of decreasing age, then to the females, also in order of decreasing age. Therefore the actual age must be obtained only for the small number of persons of the same sex not connected by parent-child relationships.

Let us assume that the household consists of the male household head, his father, his wife, his wife's aunt, and his grownup son; and that all are over 30 years of age (see Exhibit 17 for a list of household members). If Selection Model C (see Exhibit 18) is attached to the questionnaire for this five-adult household, the interviewer selects the son as respondent. Usually, the survey office has eight selection patterns, proportioned as indicated in Exhibit 19, and distributed at random among the questionnaires. If the appended cover sheet indicates Selection B_1, for this five-adult household, the male head is interviewed; if Selection A, the household head's father is interviewed.

If the sampling plan calls for a single respondent only from each household, the fieldwork begins after the prelisting job has been completed and the respondent has been determined.

The foregoing discussion shows that the sampling statistician not only chooses the sampling plan in the narrower sense of the term, but also lays out the rules and procedures for estimating the population parameters, the mean, aggregate, percent, and the like—in other words, the estimators. In addition, he prepares an expression and a calculation for the standard errors of the above measures.

Exhibit 14

Block Sketch

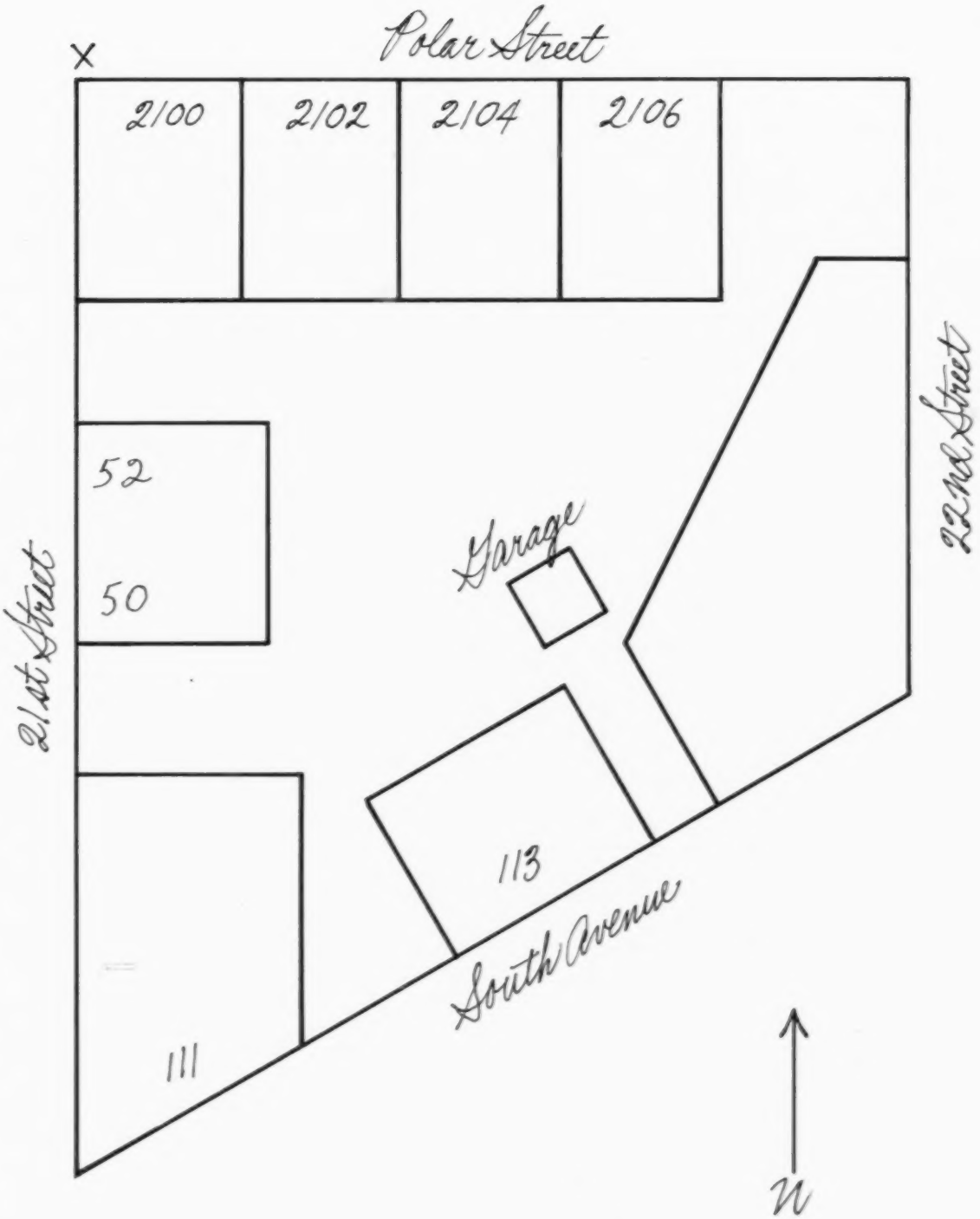


Exhibit 15

Listing Record—Dwellings

Description of boundaries of block

From: Intersection 21st and Polar St.

Block No. 85

Sketch of block

From [Street]	Direction [N.E.S.W.]	To [Street]
Polar St.	E.	22nd St.
22nd St.	S.	South Ave.
South ave.	S.W.	21 st. St.
21 st St.	N.	Polar St.

Listed by John Smith

Date VI / 3 / 71

Line No.	Address and Description of Dwelling		
1	Polar Street	2100	first floor
2		2100	second floor
3		2102	first floor
4		2102	second floor
5		2104	first floor, front
6		2104	second floor, rear
7		2106	grocery on first floor – no dwelling
8		2106	second floor, front
9		2106	second floor, rear
10		2106	third floor
11	South Avenue	Christ Church (red brick) – no dwelling	
12		red brick garage at end of driveway N.W. of Church – no dwelling	
13		113	rectory, one apartment
14		111	basement apt.
15		111	first floor apt.
16		111	second floor apt.
17		111	third floor apt.
18	21st Street	50	duplex right
19		52	duplex left
20			
21			
22			
23			
24			
25			

Exhibit 16

Listing Record—Group Quarters

Block No. _____

Listed by _____

Date _____

Identification of special dwelling place

Name _____

Type _____

Address _____

Line No.	Number or location of unit (Name of person)	Line No.	Number or location of unit (Name of person)
1		26	
2		27	
3		28	
4		29	
5		30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Exhibit 17

List of Household Members

Relation to head	Sex	Age	Adult (No.)
Male head	M		2
His wife	F	45	5
His father	M		1
His wife's aunt	F	47	4
His son	M	32	3

Exhibit 18

Selection Model C

If number of adults in household:	Interview adult number
1	1
2	1
3	2
4	2
5	3
6 or over	3

Exhibit 19

Selection Patterns

Proportion	Model types	If number of adults in household is: 1	2	3	4	5	6 or more
		select as respondent adult number:					
1/6	A	1	1	1	1	1	1
1/12	B_1	1	1	1	1	2	2
1/12	B_2	1	1	1	2	2	2
1/6	C	1	1	2	2	3	3
1/6	D	1	2	3	3	3	5
1/12	E_1	1	2	3	4	5	5
1/12	E_2	1	2	3	4	5	6
1/6	F	1	2	3	4	5	6

VIII. Post-Fieldwork Phase and Evaluation of Accuracy of Results

The evaluation of survey accuracy will be restricted to nonsampling errors since the treatment of sampling errors involves a considerable amount of probability theory and hence a good deal of mathematical language. It is further assumed that problems of sampling will be left to a competent, specialized sampling statistician.

Once the fieldwork is completed, the data processing phase may begin. Data processing comprises a number of functions, among which the most important are editing, constructing punch cards, punching, coding, sorting, and tabulating.

Editing

Editing is essentially the function of harmonizing enumeration with processing. Since the data are probably neither complete nor internally consistent, the editor must inspect and correct them. If at all possible, the questionnaires should be edited as soon as they are turned in; otherwise a need for additional information may be discovered after the fieldwork phase has been completed and the interviewing staff has been disbanded. Also, the prompt examination of questionnaires for legibility will preclude the interviewer's guessing the meaning of entries which he can no longer remember.

The primary purpose of editing is to eliminate and avoid errors in answers to the questionnaire. Among such errors for which the editor has to be on the lookout are: (1) the leaving out of entries, (2) errors resulting in entries prohibited by the coding system, (3) contradictory and illogical entries, and (4) errors in computation.

Errors of the first kind can usually be corrected if the possible answers are limited to a few; e.g., in a yes-no question the correct answer can often be inferred from other entries on the form.

An error of the second kind exists, for instance, when Code 1 stands for "in the civilian labor force," and Code 2 for "not in the labor force" and some digit other than 1 or 2 appears. This could be an error in recording or in transcription.

Errors of type 3 occur when two items should be related to each other in a particular way, but are not according to the answer. An example is an entry of "construction worker" for occupation and of "retail grocery" for industry.

All computations, a fourth source of many errors, should be checked by the editor.

The editor should make adjustments, *as far as possible*, for certain missing or inconsistent items by substitution or imputation. For items for which imputation cannot readily be undertaken, several possibilities offer themselves. One is to abstain from imputing altogether and to accept "unknown" as a special item in tabulation. Another is to allocate the "unknowns" to the distribution of the "knowns," on the assumption that the "unknowns" are distributed like the "knowns." For instance, if for 25 persons the occupation is unknown, and if it can be assumed that the missing entries have an unbiased distribution throughout the population, then the distribution of the occupations of the 25 persons may be assumed to be the same as the known distribution of occupations.

Alternatively, the editor might look for a questionnaire from a person with the same general characteristics (age, sex, occupation) as the respondent with a missing reply, and would impute the former's answer for the missing one of the latter. This procedure is particularly well adapted to mechanical editing on electronic computers.

The editor should never erase an original entry. He should make editorial entries in a distinctive color, such as red, so that his entries may be distinguished from the interviewer's or respondent's. To correct an answer, he should draw two horizontal lines through it, and place his new entry just above it, with his initials and the date. It is well to keep careful track of all editorial changes for future reference, and also to appraise the quality of the work of both interviewers and editors.

Constructing Punch Cards

The first task in the preparation of the survey information is to design a punch card. Together with the construction of codes (covered in Chapter VI), the makeup of punch sheets and punch cards is of the utmost importance for the success of the survey project and for the final analysis of the survey results. Hence, both operations should be performed by an able person, familiar with the requirements of the study and with the technology of machine methods of tabulation.

The careful layout of the punch card for recording the answers to the survey questions can be considered one of the most important tasks in surveys, the results of which are to be processed mechanically or with the help of automatic and electronic data processing equipment. In designing the card, space should be wisely allocated to avoid waste: sufficient columns should be set aside for the serial identification of the questionnaires, and care should be taken to allow enough space for the recording of answers in addition to those that are anticipated.

The punched card, or the tabulation card to which any information from the printed or handwritten document is converted, usually measures $7\frac{3}{8}$ by $3\frac{1}{4}$ inches, and is as a rule divided into 80 vertical strips called card columns.[1] Each such column is then divided into 12 punching positions, called rows. The columns are usually numbered from left to right, 1 to 80, and the rows are designated from top to bottom by 12, 11 (sometimes called X), 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. Each column is used to accommodate a digit or a letter.

Digits are recorded as holes in the digit punching positions from 0 to 9. Letters are recorded by punching two holes following a very simple pattern: *a* to *i* are coded by the combination of a 12 punch and the digit punches 1 to 9; *j* to *r* by an 11 punch and the digit punches 1 to 9; and *s* through *z* by a zero punch and the digit punches 2 to 9.

Items of information are recorded in consecutive columns, called fields. A field can consist of one to 80 columns, depending on the length of the particular item of information. Field size will be determined by the maximum length of the information to be entered in that field.

Punching Cards

The punching of cards is done with a key punch, resembling a typewriter. On the right of the machine is a card hopper which holds about 500 cards. A card is fed from the hopper by pressing the feed key.

Punching is performed at the first of two stations. To start a large punching operation, two cards are fed into the machine, and as the second card is fed, the first one is automatically positioned for punching. While the first card is being punched, the second waits at the right of the card being punched. When column 80 of the first card passes through the punching station, it moves to the release station and the next card feeds into position. The card is released from the punching to the reading station as soon as the desired number of columns has been punched, and another card moves into punching position.

The reading station performs an important function: some of the information in a group of cards may be repetitive. Duplicating these holes would save time and avoid errors. Depressing the "duplicate key" will activate the reading station to duplicate the pertinent holes.

Then there is the card stacker. It will also hold 500 cards, and it is located to the left of the machine. After each card has passed the reading station, it is sent to the stacker in proper sequence.

A similar machine will verify the cards. After a batch of cards has been punched, it is taken to the verifier. There the cards are checked. A sensing mechanism has replaced the punch dies. If the operator depresses a key, the card proceeds to the next column if it is the same key that made the original hole, otherwise the verifier lights up.

The punching of information can be done directly from the questionnaire or from a so-called intermediate punch sheet which greatly increases the flexibility, speed, and convenience of the recorded information. This permits the key punch operator to proceed faster than if he has to work from the original document itself. This convenience, of course, has to be weighed against the probability of making transcription errors and the cost of guarding against them.

The intermediary punch sheet looks like an enlarged punch card with many rows, permitting the entry of numbers from the original source document which an experienced punch card operator can do with great speed as his eyes follow a given row from the left to the right.

Arrangements should be made for methods of handling problem questionnaires with incorrect codes, unreadable entries, or any data that cannot be punched. It is recommended that markers be used to indicate the position of such questionnaires in the deck and that the questionnaires be referred to the supervisor. After the problem questionnaires have been corrected and returned, the necessary cards should be punched, verified, and inserted in their respective places in the deck, and the markers should be removed.

Error cards; i.e., cards which after verification are found to contain one or more errors or missing punches, should have the incorrect or missing punches circled in red so that the correction operator can locate them easily. He should first remove these cards from the deck and then, referring to the appropriate original questionnaire, correct each error card by duplicating the correct portion of the card and repunching the part of the card containing the error(s) with the correct data from the questionnaire. The corrected part of the card should again be verified, and the card should be returned to the deck. A control sheet should be kept indicating data received, number of cards to be repunched, name of operator, date completed, and similar information. As can be seen, obtaining a final deck of punched cards which accurately records the data is a complex operation.

[1]This is the IBM system; the Remington Rand card accommodates 90 columns.

Sorting and Tabulating

Once cards are punched and verified, they may be sorted. In sorting, cards are assembled into desired categories. Usually they are sorted for counting the number in different classes in order to prepare frequency tables or to total quantitative information relating to the different classes.

Tabulating, the next step, may be accomplished by machine methods, which also require certain hand operations, or it may be carried out by tapes and electronic machines which require special programming by a programmer or a systems engineer. In estimating the cost of machine tabulations, the survey authorities should decide whether or not such work is to be turned over to an outside agency.

Tabulations are commonly divided into two kinds, primary and secondary "analyses." Primary analyses are straight counts of answers to questions, while secondary analyses refer to cross counts or correlations of one or more questions with another. The straight count results in a one-dimensional table or frequency distribution; the secondary, in a multidimensional table or frequency distribution.

A straight count is made by counting all the answers to a question without reference to any other item which might be recorded on the card. For example, if column 21 contains the code for hours worked per week by members of the labor force, then a sort on column 21 will yield a frequency distribution of hours worked. If the code occupies both columns 21 and 22, then two passes (two trips of the deck of cards through the sorter) will be required, the first on column 22 and the second on 21.

A multidimensional count is composed of certain items or answers to questions in their relation to other items or answers. This type of count is made by first sorting the cards into groups, perhaps according to income, and then sorting each group separately under the column or columns representing the other item, which may be sex.

An example of a three-dimensional analysis would be the attitude-toward-work pattern, analyzed by income groups and sex.

This sort can be presented more lucidly by a cardhandling chart than by a table. As can be seen from the chart (Exhibit 20), the complete sort requires three passes; one to determine income distribution, one to ascertain sex, and one to count the several attitudes.

Evaluation of Accuracy

An evaluation of the accuracy of survey findings is particularly important. It is now generally agreed that some indication of nonsampling errors and of their possible effect on the accuracy of the results should be an integral part of any survey report. Any special checks instituted to control and determine the magnitude of these errors should be described, and the results of the checks should be reported.

Errors arising from collection and data processing activities may again be classified as errors resulting from survey structure, questionnaire design, interviewer activity, and information processing.

If the survey is a sampling survey, precision of the survey findings as indicated by the random sampling error should, of course, be given. But unlike random sampling, for which a theory closely related to the mathematical theory of probability has been developed, no mathematical model exists as yet for nonsampling errors. (Recent research, however, points toward the development of a model.) If we look at nonsampling errors in terms of their origin, we can divide them into (1) errors and biases of nonresponse and (2) errors and biases due to other survey problems.[2] Nonresponse in turn may be complete nonresponse; i.e., noncompletion in the proper sense of the word, or it may be item nonresponse; i.e., nonresponse to individual parts of the questionnaire or interview. Simply to omit such nonresponses from the tabulation of the percentage base, and to consider only the completed answers is to proceed as if the nonresponses were distributed in the same way as the responses, which is obviously not true. Noncompletion includes noncooperation on the part of the nonrespondents; it also includes the "not at homes"; i.e., the respondents who cannot be located even after several calls.

Errors resulting from other survey problems—for instance, those arising from collection or processing problems—include some very vexing errors originating in questionnaire design, in interviewing, and in processing. With the exception of errors stemming from data processing, these errors differ from the previously discussed ones in that their presence is not readily discovered. Whereas errors of noncompletion are quite manifest, errors in questionnaire design and in interviewing rarely are; hence, discovering such errors is problematical. Questionnaires offer many occasions for bias, among them the wording of the question and the choices suggested as answers. These sources of error are further magnified if we consider the frequency of cross-cultural problems faced by manpower survey designers. We discussed some aspects of these problems earlier in connection with questionnaire construction.

Similarly, there are many kinds of interview errors. The interviewer may affect the mood of the respondent and thereby obtain a biased response. The interviewer's three functions—interpreting the questions, helping to formulate the answers, and obtaining the response—can be performed satisfactorily by him only if his work is standardized and he can be trained to a high level of objectivity. This may be brought about in part by training and supervision, but beyond this there remains an interviewer effect on the respondent which is very difficult to estimate, let alone

[2]By bias, we usually mean an effect which systematically distorts a statistical result, as distinct from a random error which may distort on any one occasion, but which cancels out on the average.

measure. Stress, therefore, should be placed on the interviewer as a reporter and on his skill in staying neutral.

Interviewers may make errors in asking questions and in recording answers. They may fail to ask questions as worded or may skip them altogether, and they may record answers incorrectly and incompletely. Some interviewers may even try to manufacture an interview or substitute a different household.

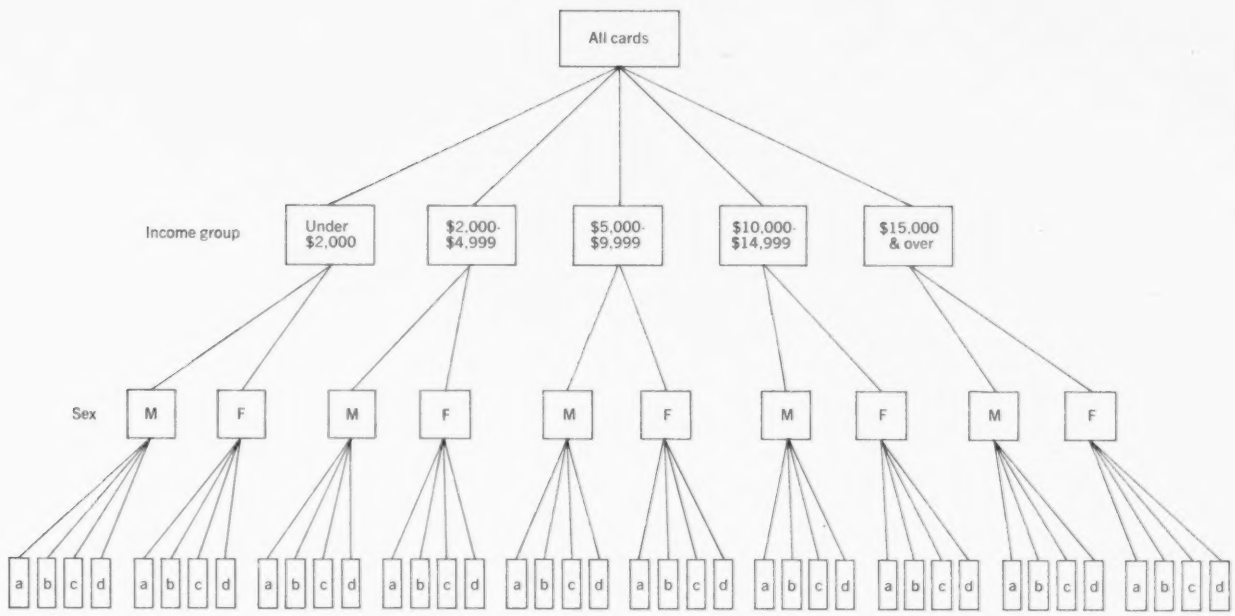
There is also response error which can be made by the respondent, the interviewer, or both. Among the many reasons for misinformation given by the respondent are memory failure, deliberate attempts to give wrong answers, and lack of interest. Memory failure may cause the respondent to give wrong answers unwittingly or to conceal his forgetfulness by guessing answers. Related to errors caused by memory failure are those caused by the subconscious endeavor of the respondent to telescope a longer period into a shorter one. Examples of deliberate falsehood are a respondent's overstatement of his educational background or understatement of his drinking habits. A respondent may give a careless or accidental answer because he does not deem the question important enough to give it careful consideration—this is lack of interest.

Large numbers of errors originate in the general area of information processing. These errors depend on the equipment used and on the techniques employed; they may stem from either hand or machine operations. They include loss of questionnaires; unsuitable coding and editing; and mistakes in copying, tallying, calculating, and tabulating.

Errors in hand operations occur in the coding, editing, and copying processes. Hand copying is the source of such large numbers of errors that it should be kept to a minimum. Where copying is unavoidable, checks on column and row totals are thought to be more helpful in locating errors than checks on the individual postings. In large hand cal-

Exhibit 20

Cardhandling Chart



Attitude toward work:

a. Like it very much.
b. Like it fairly well.
c. Dislike it somewhat.
d. Dislike it very much.

Note: Sorting for industry groups would require an additional initial pass. The individual industry-group deck would appear in the "all cards" position in the chart above.

culations, computing may be arranged so that two computers calculate on different machines in different units, one, for instance, in miles and the other in kilometers. This should reduce errors in calculation.

Machine errors are generally considered negligible, but on close inspection they may turn out to be significant, especially where faulty handling of machines is involved. Therefore, a full verification of card punching is recommended. A good rule is to regard any unchecked calculations as a probable source of errors.

It is good practice to institute what is called a "quality control program" when the survey is initiated. It includes intensive training of coders, punching clerks, and tabulation staff; verification of the work of each individual; frequent retraining; appropriate rewards for high quality work; and dismissal of individuals who fail to measure up to standards.

In spite of all these precautions, errors will happen. And unfortunately, once the existence of errors is ascertained, neither the diagnosis of certain types nor the therapeutics for dealing with them are simple. Therefore, the data should be subject to a thorough technical review by careful examiners to ensure that nothing of importance is overlooked.

In conclusion, the best advice that can be given to the manager of a community manpower survey is to look for likely sources of bias and to delineate them meticulously. Where adjustments are made, they should be noted conscientiously. For instance, where survey findings are adjusted for missing data on the assumption that the missing cases had the same average characteristics as the reported ones, this should be expressly indicated. No information should be withheld from the reader which might give him a better understanding of the suspected errors and, if possible, of their order of magnitude.

To guide the survey director, we give the following excerpts from an amended checklist of basic procedural steps in survey operations, which appeared in a 1969 manual published by the Bureau of the Budget.[3]

Checklist of Procedural Steps

Each survey will have its own objectives and methods of field operation. A blueprint that could be used in all surveys, therefore, is impossible to draw, but a list of steps that should be taken (or eliminated by design) in a typical survey operation might be helpful. Outlined below are the basic survey activities that follow upon the decision to make a survey.

[3]*Household Survey Manual*, p. 63.

A. *Planning decisions* include:

1. Major objectives and designation of critical statistics to be obtained, for specified areas and subareas.
2. Determination of scope. In consultation with technical experts and perhaps an advisory committee, determining what can be obtained within the limits of available resources, and the size of sample needed for reliable statistics on critical problems.
3. Decisions on survey content and nature of pretest, if any.
4. Establishment of timetable for steps listed in B.12, below.
5. Decisions on budget allocations for various functions—pay scales, travel allowance, etc.

B. *Procedural steps following planning decisions* include:

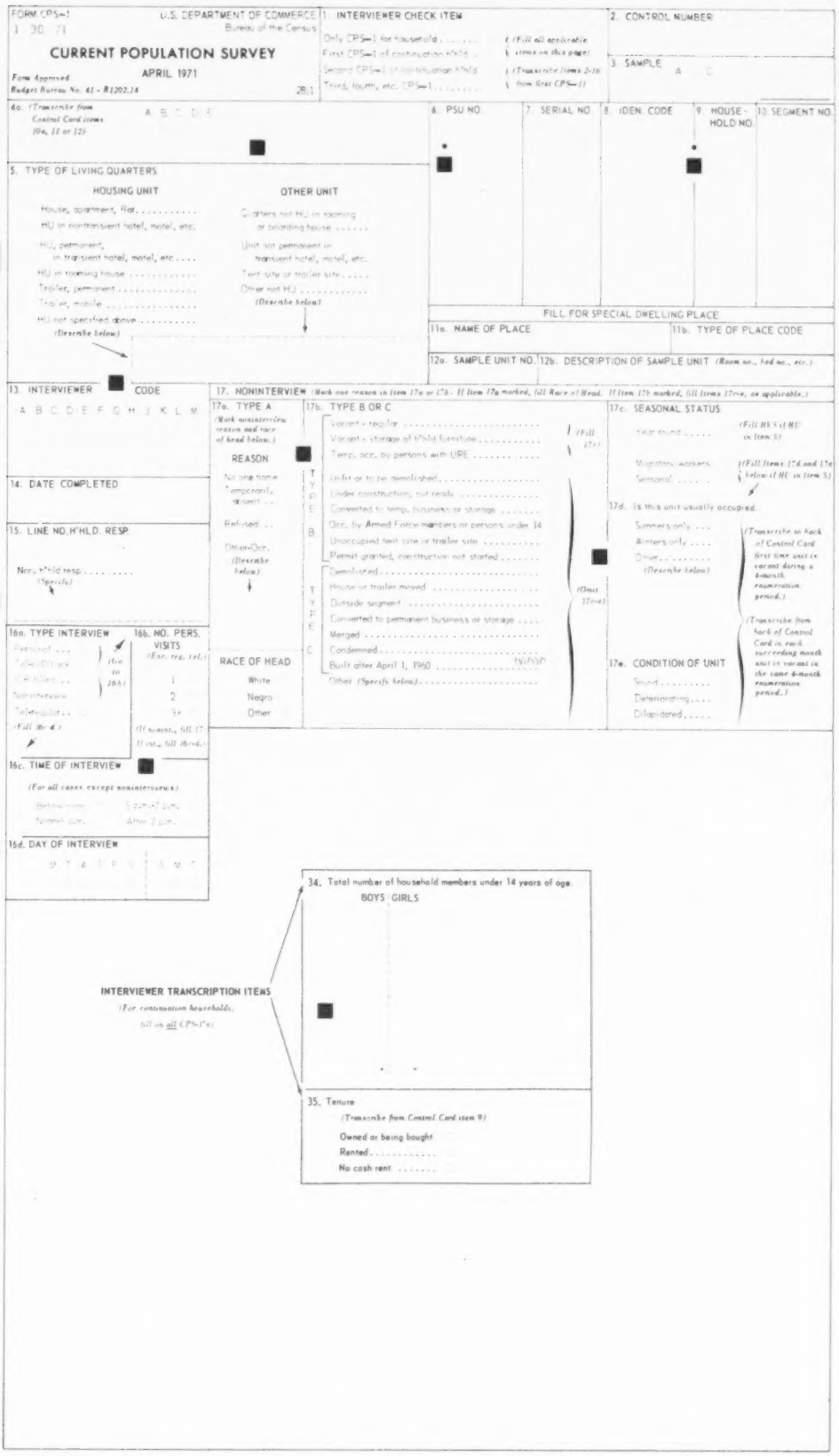
1. Selection of survey director and staff.
2. Procurement of space sufficient for director, assistants, and clerical and processing operations (control, assignment, editing, coding, and tabulating).
3. If a sample is involved, arrangements for retaining the services of a sampling statistician, and preparation of sampling materials (maps, directories, lists, etc.).
4. Arrangements for recruitment and hiring of interviewers.
5. Arrangements for design and printing of questionnaires and other forms.
6. Arrangement for processing questionnaires.
7. Inauguration of publicity program.
8. Recruitment, hiring, and training of field supervisors.
9. Start of field work necessary for sample selection, if required (prelisting).
10. Sampling instructions, including estimation procedures (to be furnished by sampling statistician).
11. Recruitment, hiring, and training of interviewers. Training may be required for listing as well as for interviewing.
12. Recruitment, hiring, and training of processing staff.
13. Review of interviewers' work in training and during survey operation. Replacement of dropouts and incompetents.

APPENDIX A

Current Population Survey

April 1971

[Second page repeated for additional members of household.]



FORM CPS-1
1 30 71

U.S. DEPARTMENT OF COMMERCE
Bureau of the Census

CURRENT POPULATION SURVEY

APRIL 1971

Form Approved
Budget Bureau No. 41 - R1202.14

28-1

1. INTERVIEWER CHECK ITEM
Only CPS-1 for household . . . . . (Fill all applicable items on this page)
First CPS-1 of continuation H'hld . . (Transcribe items 2-16 from first CPS-1)
Second CPS-1 of continuation H'hld
Third, fourth, etc. CPS-1 . . . . . .

2. CONTROL NUMBER

3. SAMPLE A C

4a. (Transcribe from Control Card items 10a, 11 or 12) A B C D E F

6. PSU NO.

7. SERIAL NO.

8. IDEN. CODE

9. HOUSE-HOLD NO.

10. SEGMENT NO.

5. TYPE OF LIVING QUARTERS

HOUSING UNIT
House, apartment, flat . . . . . .
HU in nontransient hotel, motel, etc.
HU, permanent, in transient hotel, motel, etc . . . .
HU in rooming house . . . . . .
Trailer, permanent . . . . . .
Trailer, mobile . . . . . .
HU not specified above . . . . . .
(Describe below)

OTHER UNIT
Quarters not HU in rooming or boarding house . . . . . .
Unit not permanent in transient hotel, motel, etc.
Tent site or trailer site . . . . .
Other not HU . . . . . .
(Describe below)

FILL FOR SPECIAL DWELLING PLACE

11a. NAME OF PLACE

11b. TYPE OF PLACE CODE

12a. SAMPLE UNIT NO.

12b. DESCRIPTION OF SAMPLE UNIT (Room no., hsd no., etc.)

13. INTERVIEWER CODE
A B C D E F G H I K L M

14. DATE COMPLETED

15. LINE NO. H'HLD. RESP.
Nonr. h'hld resp. . . . . .
(Specify)

16a. TYPE INTERVIEW
Personal . . .
Telephone . . .
Combined . . .
Noninterview
Telephone . . .
(Fill 16c & d.)

16b. NO. PERS. VISITS (Excl. resp. rel.)
(16a to 16b)
1
2
3+
(If nonint., fill 17. If int., fill 16c-d.)

16c. TIME OF INTERVIEW
(For all cases except noninterviews)
Before noon
Noon-5 p.m.
5 p.m.-7 p.m.
After 7 p.m.

16d. DAY OF INTERVIEW
M T W T F S S

17. NONINTERVIEW (Mark one reason in item 17a or 17b. If item 17a marked, fill Race of Head. If item 17b marked, fill items 17c-e, as applicable.)

17a. TYPE A (Mark noninterview reason and race of head below.)

REASON
No one home
Temporarily absent . . .
Refused . . .
Other-Occ. (Describe below)

RACE OF HEAD
White
Negro
Other

17b. TYPE B OR C

TYPE B
Vacant - regular . . . . . (Fill 17c)
Vacant - storage of H'hld furniture . . . . . (Fill 17c)
Temp. occ. by persons with URE . . . . . (Fill 17c)
Unfit or to be demolished . . . . . (Omit 17c-e)
Under construction, not ready . . . . . (Omit 17c-e)
Converted to temp. business or storage . . . . . (Omit 17c-e)
Occ. by Armed Force members or persons under 14 . . . . . (Omit 17c-e)
Unoccupied tent site or trailer site . . . . . (Omit 17c-e)
Permit granted, construction not started . . . . . (Omit 17c-e)

TYPE C
Demolished . . . . . (Omit 17c-e)
House or trailer moved . . . . . (Omit 17c-e)
Outside segment . . . . . (Omit 17c-e)
Converted to permanent business or storage . . . . . (Omit 17c-e)
Merged . . . . . (Omit 17c-e)
Condemned . . . . . (Omit 17c-e)
Built after April 1, 1960 . . . . . (Omit 17c-e)
Other (Specify below) . . . . . (Omit 17c-e)

17c. SEASONAL STATUS
Year round . . . . . (Fill HVS if HU in item 5)
Migratory workers . . . . . (Fill Items 17d and 17e below if HU in item 5)
Seasonal . . . . . (Fill Items 17d and 17e below if HU in item 5)

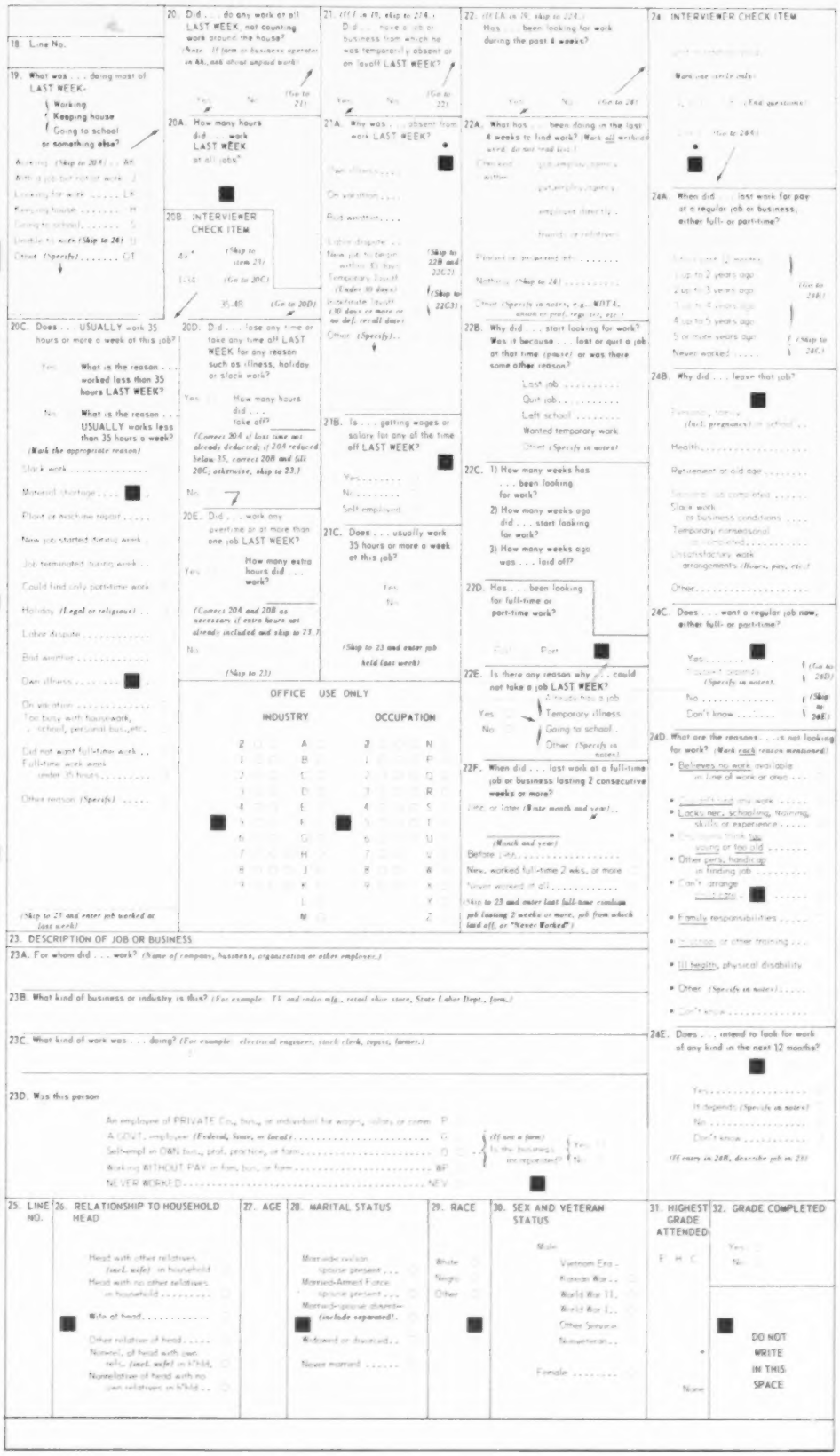
17d. Is this unit usually occupied
Summers only . . .
Winters only . . . .
Other . . . . . .
(Describe below)
(Transcribe to back of Control Card first time unit is vacant during a 6-month enumeration period.)

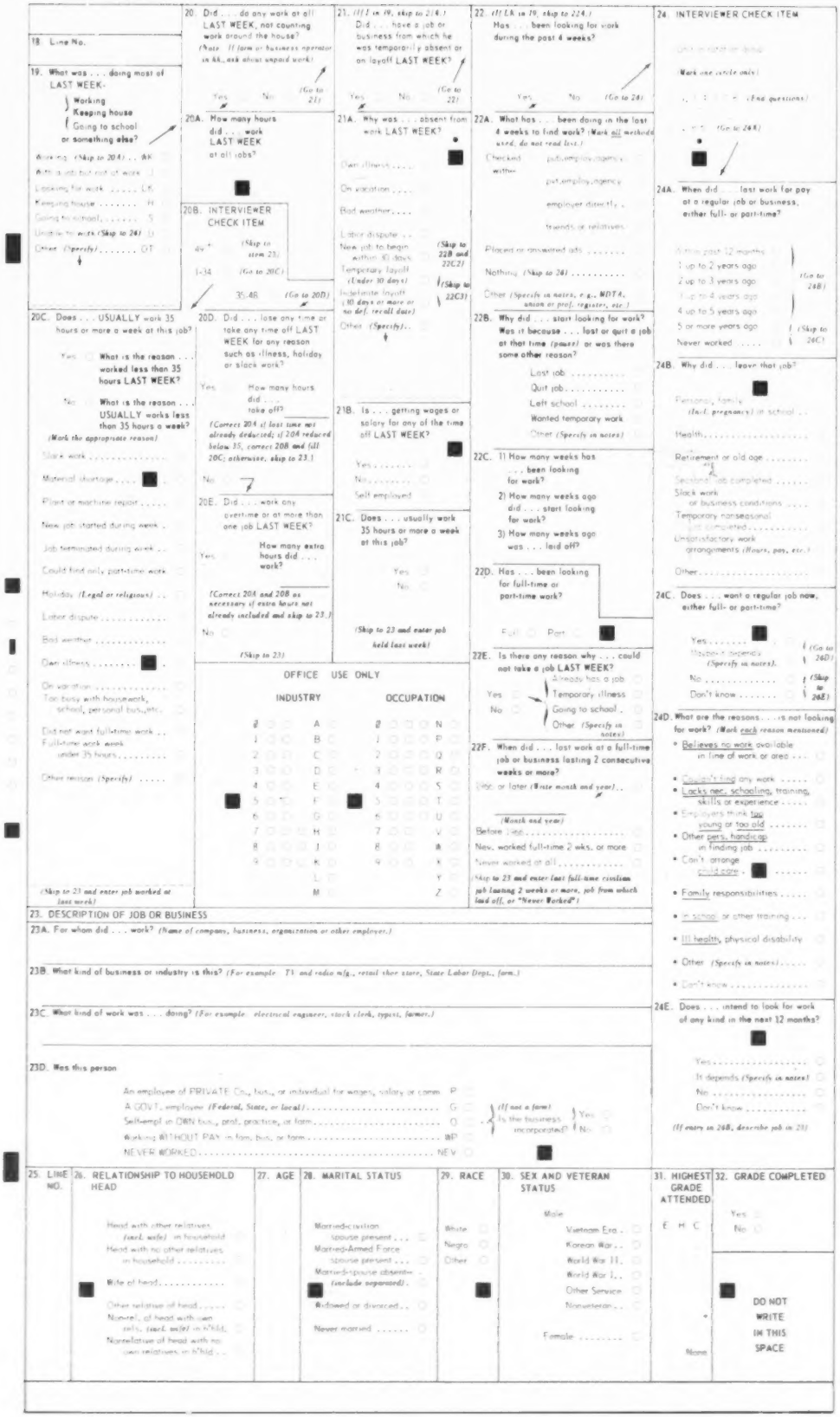
17e. CONDITION OF UNIT
Sound . . . . . .
Deteriorating . . . .
Dilapidated . . . . .
(Transcribe from back of Control Card in each succeeding month unit is vacant in the same 6-month enumeration period.)

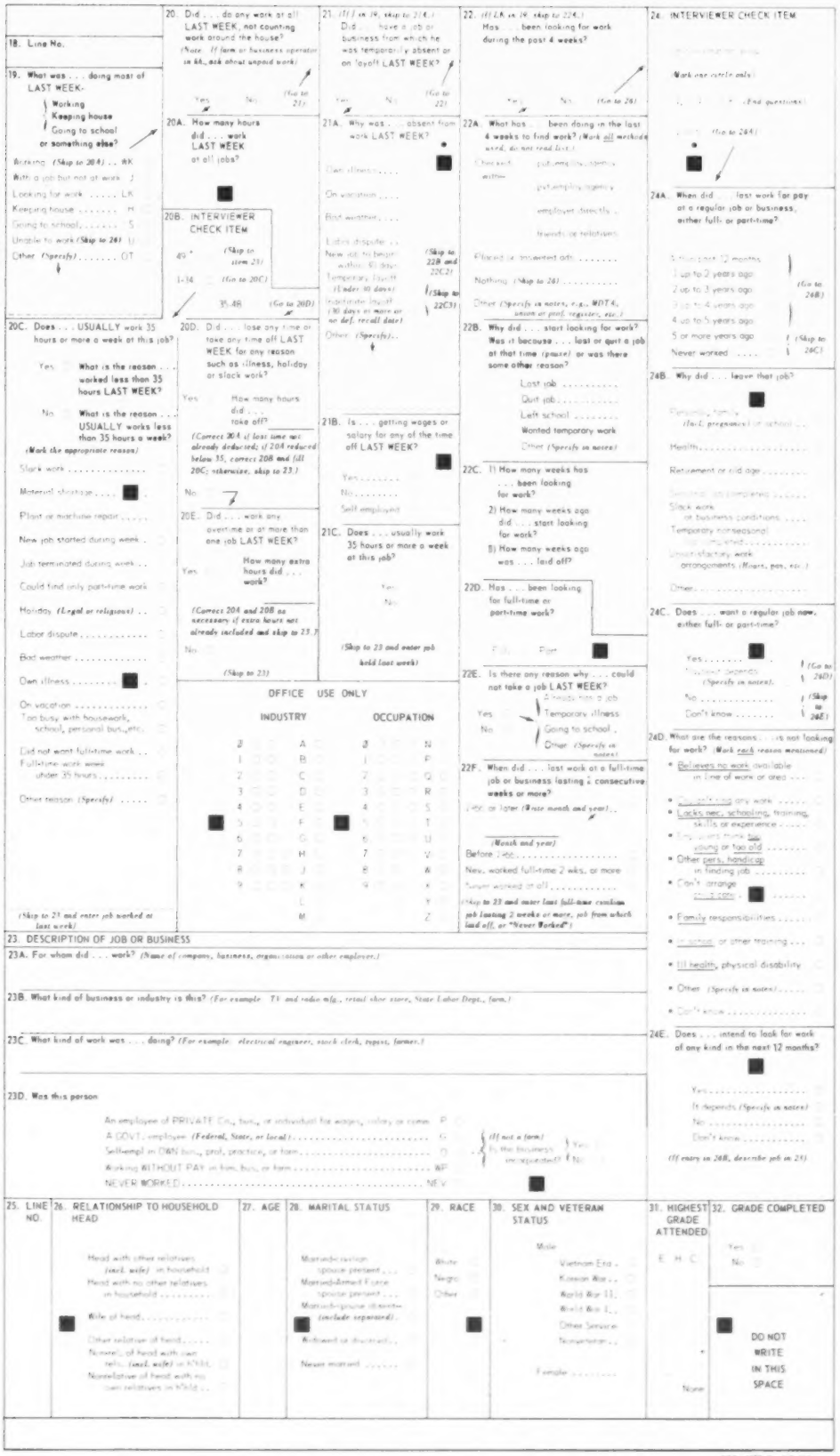
INTERVIEWER TRANSCRIPTION ITEMS
(For continuation households, fill on all CPS-1's)

34. Total number of household members under 14 years of age.
BOYS GIRLS

35. Tenure
(Transcribe from Control Card item 9)
Owned or being bought
Rented . . . . . .
No cash rent . . . . . .


18. Line No.
19. What was . . . doing most of LAST WEEK-
Working
Keeping house
Going to school
or something else?
Ans'ng (Skip to 20A) . . AK
With a job but not at work . J
Looking for work . . . . . LK
Keeping house . . . . . H
Going to school . . . . . S
Unable to work (Skip to 24) . U
Other (Specify) . . . . . OT
20. Did . . . do any work at all LAST WEEK, not counting work around the house?
(Note: If farm or business operator in AK, ask about unpaid work)
Yes
No
(Go to 21)
20A. How many hours did . . . work LAST WEEK at all jobs?
20B. INTERVIEWER CHECK ITEM
35+
(Skip to item 21)
1-14
(Go to 20C)
15-34
(Go to 20D)
20C. Does . . . USUALLY work 35 hours or more a week at this job?
Yes
What is the reason . . . worked less than 35 hours LAST WEEK?
No
What is the reason . . . USUALLY works less than 35 hours a week?
(Mark the appropriate reason)
Slack work . . . . . .
Material shortage . . . .
Plant or machine repair . . . . .
New job started during week .
Job terminated during week . .
Could find only part-time work
Holiday (Legal or religious) . .
Labor dispute . . . . . .
Bad weather . . . . . .
Own illness . . . . . .
On vacation . . . . . .
Too busy with housework, school, personal business, etc.
Did not want full-time work . .
Full-time work week under 35 hours . . . . . .
Other reason (Specify) . . . . .
(Skip to 23 and enter job worked at last week)
20D. Did . . . lose any time or take any time off LAST WEEK for any reason such as illness, holiday or slack work?
Yes
How many hours did . . . take off?
(Correct 20A if lost time not already deducted; if 20A reduced below 35, correct 20B and fill 20C; otherwise, skip to 23.)
No
20E. Did . . . work any overtime or at more than one job LAST WEEK?
Yes
How many extra hours did . . . work?
(Correct 20A and 20B as necessary if extra hours not already included and skip to 23.)
No
(Skip to 23)
21. (If LA in 19, skip to 21A.)
Did . . . have a job or business from which he was temporarily absent or on layoff LAST WEEK?
Yes
No
(Go to 22)
21A. Why was . . . absent from work LAST WEEK?
Own illness . . . .
On vacation . . . .
Bad weather . . . .
Labor dispute . . .
New job to begin within 30 days
Temporary layoff (Under 30 days)
Indefinite layoff (30 days or more or no def. recall date)
Other (Specify)
(Skip to 22B and 22C(2))
(Skip to 22C(3))
21B. Is . . . getting wages or salary for any of the time off LAST WEEK?
Yes
No
Self-employed
21C. Does . . . usually work 35 hours or more a week at this job?
Yes
No
(Skip to 23 and enter job held last week)
22. (If LA in 19, skip to 22A.)
Has . . . been looking for work during the past 4 weeks?
Yes
No
(Go to 24)
22A. What has . . . been doing in the last 4 weeks to find work? (Work all mentioned week, do not read list.)
Checked public employment office
Put/answered ads
Employer directly
Friends or relatives
Placed or answered ads
Nothing (Skip to 24) . . . . . .
Other (Specify in notes, e.g., WIN, union or prof. register, etc.)
22B. Why did . . . start looking for work? Was it because . . . lost or quit a job at that time (pause) or was there some other reason?
Lost job . . . . . .
Quit job . . . . . .
Left school . . . . . .
Wanted temporary work
Other (Specify in notes)
22C. 1) How many weeks has . . . been looking for work?
2) How many weeks ago did . . . start looking for work?
3) How many weeks ago was . . . laid off?
22D. Has . . . been looking for full-time or part-time?
Full
Part
22E. Is there any reason why . . . could not take a job LAST WEEK?
Yes
Already has a job
Temporary illness
Going to school
Other (Specify in notes)
No
22F. When did . . . last work at a full-time job or business lasting 2 consecutive weeks or more?
(Mo. or later (Write month and year)...
(Month and year)
Before (Mo. . . . . .
Never worked full-time 2 wks., or more
Never worked in all . . . . . .
(Skip to 23 and enter last full-time continuous job lasting 2 weeks or more, job from which laid off, or "Never Worked")
24. INTERVIEWER CHECK ITEM
Work was (circle code):
LA
F
(End questions)
Other
(Go to 24A)
24A. When did . . . last work for pay at a regular job or business, either full- or part-time?
Less than 1 year ago
1 up to 2 years ago
2 up to 3 years ago
3 up to 4 years ago
4 up to 5 years ago
5 or more years ago
Never worked . . . . . .
(Go to 24B)
(Skip to 24C)
24B. Why did . . . leave that job?
Personal, family (incl. pregnancy) or school . . .
Health . . . . . .
Retirement or old age . . . . . .
Seasonal job completed . . . . . .
Slack work or business conditions . . . . .
Temporary nonseasonal job completed . . . . . .
Unsatisfactory work arrangements (Hours, pay, etc.)
Other . . . . . .
24C. Does . . . want a regular job now, either full- or part-time?
Yes . . . . . .
(Go to 24D)
Doesn't seem to (Specify in notes)
No . . . . . .
(Skip to 24E)
Don't know . . . . . .
24D. What are the reasons . . . is not looking for work? (Mark each reason mentioned)
• Believes no work available in line of work or area . . . .
• Couldn't find any work . . . . .
• Lacks nec. schooling, training, skills or experience . . . . .
• Employers think too young or too old . . . . . .
• Other pers. handic. in finding job . . . . . .
• Can't arrange child care . . . . . .
• Family responsibilities . . . . .
• School or other training . . .
• Ill health, physical disability
• Other (Specify in notes) . . . . .
• Don't know . . . . . .
24E. Does . . . intend to look for work at any kind in the next 12 months?
Yes . . . . . .
It depends (Specify in notes)
No . . . . . .
Don't know . . . . . .
(If every in 24B, describe job in 23)
OFFICE USE ONLY
INDUSTRY
OCCUPATION
23. DESCRIPTION OF JOB OR BUSINESS
23A. For whom did . . . work? (Name of company, business, organization or other employer.)
23B. What kind of business or industry is this? (For example: TV and radio mfg., retail shoe store, State Labor Dept., farm.)
23C. What kind of work was . . . doing? (For example: electrical engineer, stock clerk, repair, farmer.)
23D. Was this person
An employee of PRIVATE Co., bus., or individual for wages, salary or comm. P
A GOVT. employee (Federal, State, or local) . . . . . G
Self-empl in OWN bus., prof. practice, or farm . . . . . O
Working WITHOUT PAY in farm, bus., or farm . . . . . WP
NEVER WORKED . . . . . NEV
(If not a farm) Is the business incorporated?
Yes
No
25. LINE NO.
26. RELATIONSHIP TO HOUSEHOLD HEAD
Head with other relatives (excl. wife) in household
Head with no other relatives in household . . . . . .
Wife of head . . . . . .
Other relative of head . . . . .
Nonrel. of head with own rel's. (excl. wife) in HHld.
Nonrelative of head with no own relatives in HHld . .
27. AGE
28. MARITAL STATUS
Married-civilian spouse present . . .
Married-Armed Force spouse present . . .
Married-spouse absent-(exclude separated)
Widowed or divorced . . .
Never married . . . . . .
29. RACE
White
Negro
Other
30. SEX AND VETERAN STATUS
Male
Vietnam Era . .
Korean War . .
World War II .
World War I . .
Other Service
Nonveteran . . .
Female . . . . . .
31. HIGHEST GRADE ATTENDED
E H C
None
32. GRADE COMPLETED
Yes
No
DO NOT WRITE IN THIS SPACE


18. Line No.
19. What was . . . doing most of LAST WEEK- Working / Keeping house / Going to school / or something else?
Working (Skip to 20A) . . WK
With a job but not at work . . J
Looking for work . . . . . LK
Keeping house . . . . . H
Going to school . . . . . S
Unable to work (Skip to 24) . . U
Other (Specify) . . . . . OT
20. Did . . . do any work at all LAST WEEK, not counting work around the house? (Note: If farm or business operator in 8A, ask about unpaid work.)
Yes / No (Go to 21)
20A. How many hours did . . . work LAST WEEK at all jobs?
20B. INTERVIEWER CHECK ITEM
35+ (Skip to item 23)
1-34 (Go to 20C)
35-48 (Go to 20D)
21. (If 1 in 19, skip to 21A.) Did . . . have a job or business from which he was temporarily absent or on layoff LAST WEEK?
Yes / No (Go to 22)
21A. Why was . . . absent from work LAST WEEK?
Own illness . . . .
On vacation . . . .
Bad weather . . . .
Labor dispute . . .
New job to begin within 30 days (Skip to 22B and 22C2)
Temporary layoff (Under 30 days)
Indefinite layoff (30 days or more or no def. recall date) (Skip to 22C3)
Other (Specify) . .
21B. Is . . . getting wages or salary for any of the time off LAST WEEK?
Yes . . . . . .
No . . . . . .
Self-employed
21C. Does . . . usually work 35 hours or more a week at this job?
Yes
No
(Skip to 23 and enter job held last week)
22. (If 1 in 19, skip to 22A.) Has . . . been looking for work during the past 4 weeks?
Yes / No (Go to 24)
22A. What has . . . been doing in the last 4 weeks to find work? (Mark all methods used, do not read list.)
Checked with public employment agency
private employment agency
employer directly
friends or relatives
Placed or answered ads . . . . . .
Nothing (Skip to 24) . . . . . .
Other (Specify in notes, e.g., MDTA, union or prof. register, etc.)
22B. Why did . . . start looking for work? Was it because . . . lost or quit a job at that time (pause) or was there some other reason?
Lost job . . . . . .
Quit job . . . . . .
Left school . . . . . .
Wanted temporary work
Other (Specify in notes)
22C. 1) How many weeks has . . . been looking for work?
2) How many weeks ago did . . . start looking for work?
3) How many weeks ago was . . . laid off?
22D. Has . . . been looking for full-time or part-time work?
Full / Part
22E. Is there any reason why . . . could not take a job LAST WEEK?
Yes: Already has a job / Temporary illness / Going to school / Other (Specify in notes)
No
22F. When did . . . last work at a full-time job or business lasting 2 consecutive weeks or more?
Year or later (Write month and year) . .
(Month and year)
Before 1958 . . . . . .
Nev. worked full-time 2 wks. or more
Never worked at all . . . . . .
(Skip to 23 and enter last full-time civilian job lasting 2 weeks or more, job from which laid off, or "Never Worked")
24. INTERVIEWER CHECK ITEM
Work one circle only!
(End questions)
(Go to 24A)
24A. When did . . . last work for pay at a regular job or business, either full- or part-time?
Within past 12 months / 1 up to 2 years ago / 2 up to 3 years ago / 3 up to 4 years ago / 4 up to 5 years ago (Go to 24B)
5 or more years ago / Never worked (Skip to 26C)
24B. Why did . . . leave that job?
Personal, family (Incl. pregnancy) / In school . . / Health . . . . . / Retirement or old age . . . . . / Seasonal job completed . . . . . / Slack work or business conditions . . . . / Temporary nonseasonal job completed . . . . . / Unsatisfactory work arrangements (Hours, pay, etc.) / Other . . . . . .
24C. Does . . . want a regular job now, either full- or part-time?
Yes . . . . . (Go to 26D)
Maybe - depends (Specify in notes).
No . . . . . (Skip to 26E)
Don't know . . . . . .
24D. What are the reasons . . . is not looking for work? (Mark each reason mentioned)
• Believes no work available in line of work or area . . .
• Couldn't find any work . . . . .
• Lacks nec. schooling, training, skills or experience . . . . .
• Employers think too young or too old . . . . . .
• Other pers's. handicap in finding job . . . . . .
• Can't arrange child care . . . . . .
• Family responsibilities . . . . .
• In school or other training . . .
• Ill health, physical disability
• Other (Specify in notes) . . . . .
• Can't know . . . . . .
24E. Does . . . intend to look for work at any kind in the next 12 months?
Yes . . . . . .
It depends (Specify in notes)
No . . . . . .
Don't know . . . . . .
(If every in 24B, describe job in 23)
20C. Does . . . USUALLY work 35 hours or more a week at this job?
Yes: What is the reason . . . worked less than 35 hours LAST WEEK?
No: What is the reason . . . USUALLY works less than 35 hours a week?
(Mark the appropriate reason)
Slack work . . . . . .
Material shortage . . . .
Plant or machine repair . . . . .
New job started during week . .
Job terminated during week . . .
Could find only part-time work . .
Holiday (Legal or religious) . . .
Labor dispute . . . . . .
Bad weather . . . . . .
Own illness . . . . . .
On vacation . . . . . .
Too busy with housework, school, personal bus., etc.
Did not want full-time work . .
Full-time work week under 35 hours . . . . . .
Other reasons (Specify) . . . . .
(Skip to 23 and enter job worked at last week)
20D. Did . . . lose any time or take any time off LAST WEEK for any reason such as illness, holiday or slack work?
Yes: How many hours did . . . take off? ____
(Correct 20A if last time not already deducted; if 20A reduced below 35, correct 20B and fill 20C; otherwise, skip to 23.)
No
20E. Did . . . work any overtime or at more than one job LAST WEEK?
Yes: How many extra hours did . . . work? ____
(Correct 20A and 20B as necessary if extra hours not already included and skip to 23.)
No
(Skip to 23)
OFFICE USE ONLY
INDUSTRY
OCCUPATION
23. DESCRIPTION OF JOB OR BUSINESS
23A. For whom did . . . work? (Name of company, business, organization or other employer.)
23B. What kind of business or industry is this? (For example: TV and radio mfg., retail shoe store, State Labor Dept., farm.)
23C. What kind of work was . . . doing? (For example: electrical engineer, stock clerk, typist, farmer.)
23D. Was this person
An employee of PRIVATE Co., bus., or individual for wages, salary or comm . P
A GOVT. employee (Federal, State, or local) . . . . . G
Self-empl in OWN bus., prof. practice, or farm . . . . . O
Working WITHOUT PAY in fam. bus. or farm . . . . . WP
NEVER WORKED . . . . . NEV
(If not a farm) Is the business incorporated? Yes / No
25. LINE NO.
26. RELATIONSHIP TO HOUSEHOLD HEAD
Head with other relatives (excl. wife) in household
Head with no other relatives in household . . . . . .
Wife of head . . . . . .
Other relative of head . . . . .
Nonrel. of head with own rels. (excl. wife) in h'hld.
Nonrelative of head with no own relatives in h'hld . .
27. AGE
28. MARITAL STATUS
Married-civilian spouse present . . .
Married-Armed Force spouse present . . .
Married-spouse absent-(exclude separated) .
Widowed or divorced . .
Never married . . . . . .
29. RACE
White
Negro
Other
30. SEX AND VETERAN STATUS
Male
Vietnam Era . .
Korean War . .
World War II .
World War I . .
Other Service
Nonveteran . .
Female . . . . . .
31. HIGHEST GRADE ATTENDED
E H C
None
32. GRADE COMPLETED
Yes
No
DO NOT WRITE IN THIS SPACE



18. Line No.

19. What was . . . doing most of LAST WEEK-
Working
Keeping house
Going to school
or something else?
Working (Skip to 20A) . . WK
With a job but not at work . J
Looking for work . . . . . LK
Keeping house . . . . . H
Going to school . . . . . S
Unable to work (Skip to 26) U
Other (Specify) . . . . . OT

20. Did . . . do any work at all LAST WEEK, not counting work around the house? (Note: If farm or business operator in HH, ask about unpaid work)
Yes / No (Go to 21)

20A. How many hours did . . . work LAST WEEK at all jobs?

20B. INTERVIEWER CHECK ITEM
49+ (Skip to item 21)
1-14 (Go to 20C)
15-48 (Go to 20D)

20C. Does . . . USUALLY work 35 hours or more a week at this job?
Yes: What is the reason . . . worked less than 35 hours LAST WEEK?
No: What is the reason . . . USUALLY works less than 35 hours a week?
(Mark the appropriate reason)
Slack work
Material shortage
Plant or machine repair
New job started during week
Job terminated during week
Could find only part-time work
Holiday (Legal or religious)
Labor dispute
Bad weather
Own illness
On vacation
Too busy with housework, school, personal business, etc.
Did not want full-time work
Full-time work under 35 hours
Other reason (Specify)
(Skip to 23 and enter job worked at last week)

20D. Did . . . lose any time or take any time off LAST WEEK for any reason such as illness, holiday or slack work?
Yes: How many hours did . . . take off?
(Correct 20A if lost time not already deducted; if 20A reduced below 35, correct 20B and fill 20C; otherwise, skip to 23.)
No

20E. Did . . . work any overtime or at more than one job LAST WEEK?
Yes: How many extra hours did . . . work?
(Correct 20A and 20B as necessary if extra hours not already included and skip to 23.)
No
(Skip to 23)

21. (If LK in 19, skip to 21A.) Did . . . have a job or business from which he was temporarily absent or on layoff LAST WEEK?
Yes / No (Go to 22)

21A. Why was . . . absent from work LAST WEEK?
Own illness
On vacation
Bad weather
Labor dispute
New job to begin within 30 days (Skip to 22B and 22C2)
Temporary layoff (Under 30 days) (Skip to 22C3)
Indefinite layoff (30 days or more or no def. recall date)
Other (Specify)

21B. Is . . . getting wages or salary for any of the time off LAST WEEK?
Yes
No
Self-employed

21C. Does . . . usually work 35 hours or more a week at this job?
Yes
No
(Skip to 23 and enter job held last week)

22. (If LK in 19, skip to 22A.) Has . . . been looking for work during the past 4 weeks?
Yes / No (Go to 26)

22A. What has . . . been doing in the last 4 weeks to find work? (Work all methods used, do not read list.)
Checked with (Which agency)
public employment agency
employer directly
friends or relatives
Placed or answered ads
Nothing (Skip to 26)
Other (Specify in notes, e.g., WDTA, union or prof. registers, etc.)

22B. Why did . . . start looking for work? Was it because . . . lost or quit a job at that time (pause) or was there some other reason?
Lost job
Quit job
Left school
Wanted temporary work
Other (Specify in notes)

22C. 1) How many weeks has . . . been looking for work?
2) How many weeks ago did . . . start looking for work?
3) How many weeks ago was . . . laid off?

22D. Has . . . been looking for full-time or part-time work?
Full / Part

22E. Is there any reason why . . . could not take a job LAST WEEK?
Yes: Already has a job / Temporary illness / Going to school / Other (Specify in notes)
No

22F. When did . . . last work at a full-time job or business lasting 2 consecutive weeks or more?
(Yr. or later (Write month and year))
(Month and year)
Before
Never worked full-time 2 wks. or more
Never worked at all
(Skip to 23 and enter last full-time civilian job lasting 2 weeks or more, job from which laid off, or "Never Worked")

24. INTERVIEWER CHECK ITEM
(Work one circle only)
(End questions)
(Go to 24A)

24A. When did . . . last work for pay at a regular job or business, either full- or part-time?
Since past 12 months
1 up to 2 years ago
2 up to 3 years ago (Go to 24B)
3 up to 4 years ago
4 up to 5 years ago
5 or more years ago (Skip to 24C)
Never worked

24B. Why did . . . leave that job?
Personal, family (incl. pregnancy) or school
Health
Retirement or old age
Seasonal job completed
Slack work or business conditions
Temporary nonseasonal job completed
Unsatisfactory work arrangements (Hours, pay, etc.)
Other

24C. Does . . . want a regular job now, either full- or part-time?
Yes (Go to 24D)
Yes, but (Specify in notes)
No (Skip to 24E)
Don't know

24D. What are the reasons . . . is not looking for work? (Work each reason mentioned)
- Believes no work available in line of work or area
- Couldn't find any work
- Lacks nec. schooling, training, skills or experience
- Employers think too young or too old
- Other pers. handicap in finding job
- Can't arrange child care
- Family responsibilities
- In school or other training
- Ill health, physical disability
- Other (Specify in notes)
- Don't know

24E. Does . . . intend to look for work of any kind in the next 12 months?
Yes
It depends (Specify in notes)
No
Don't know
(If every no 24B, describe job in 23)

OFFICE USE ONLY
INDUSTRY
OCCUPATION

23. DESCRIPTION OF JOB OR BUSINESS

23A. For whom did . . . work? (Name of company, business, organization or other employer.)

23B. What kind of business or industry is this? (For example: TV and radio mfg., retail shoe store, State Labor Dept., farm.)

23C. What kind of work was . . . doing? (For example: electrical engineer, stock clerk, repair, farmer.)

23D. Was this person
An employee of PRIVATE Co., bus., or individual for wages, salary or comm. P
A GOVT. employee (Federal, State, or local) G
Self-empl. in OWN bus., prof. practice, or farm O
Working WITHOUT PAY in fam. bus. or farm WP
NEVER WORKED NEV
(If not a farm) Is the business incorporated? Yes / No

25. LINE NO.	26. RELATIONSHIP TO HOUSEHOLD HEAD	27. AGE	28. MARITAL STATUS	29. RACE	30. SEX AND VETERAN STATUS	31. HIGHEST GRADE ATTENDED	32. GRADE COMPLETED
	Head with other relatives (incl. wife) in household Head with no other relatives in household Wife of head Other relative of head Nonrel. of head with own rels. (incl. wife) in HHld. Nonrelative of head with no own relatives in HHld.		Married—civilian spouse present Married—Armed Forces spouse present Married—spouse absent (include separated) Widowed or divorced Never married	White Negro Other	Male Vietnam Era Korean War World War II World War I Other Service Nonveteran Female	E H C None	Yes No DO NOT WRITE IN THIS SPACE

GPO 1970 O - 413-190

APPENDIX B

National Longitudinal Surveys

Survey of Work Experience of Young Women

1970

Budget Bureau No. 41-R2423; Approval Expires December 1973

NOTICE – Your report to the Census Bureau is confidential by law (Title 13, U.S. Code). It may be seen only by sworn Census employees and may be used only for statistical purposes.

FORM LGT-421
(11-17-69)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

NATIONAL LONGITUDINAL SURVEYS
SURVEY OF WORK EXPERIENCE OF YOUNG WOMEN
1970

001

RECORD OF CALLS

Date	Time	Comments
	a.m. / p.m.	
	a.m. / p.m.	
	a.m. / p.m.	
	a.m. / p.m.	

METHODS OF LOCATING RESPONDENT WHO HAS MOVED

		Successful	Unsuccessful
New occupants	002	1 ☐	2 ☐
Neighbors	003	1 ☐	2 ☐
Apartment house manager	004	1 ☐	2 ☐
Post office	005	1 ☐	2 ☐
School	006	1 ☐	2 ☐
Persons listed on information sheet	007	1 ☐	2 ☐
Other – *Specify*	008	1 ☐	2 ☐

RECORD OF INTERVIEW

Interview time Began	Interview time Ended	Date completed	Interviewed by
a.m. / p.m.	a.m. / p.m.		

NONINTERVIEW REASON

009

- ☐ Unable to contact respondent – *Specify*
- 6 ☐ Temporarily absent – *Give return date*
- 8 ☐ Institutionalized – *Specify type*
- 9 ☐ Refused
- 0 ☐ Deceased
- A ☐ Other – *Specify*

TRANSCRIPTION FROM HOUSEHOLD RECORD CARD

010 **Item 13 – Marital status of respondent**

- 1 ☐ Married, spouse present
- 2 ☐ Married, spouse absent
- 3 ☐ Widowed
- 4 ☐ Divorced
- 5 ☐ Separated
- 6 ☐ Never married

If respondent has moved, enter new address

1. Number and street — 011

012

2. City	3. County	4. State	5. ZIP code	013

I. EDUCATIONAL STATUS

1. Are you attending or enrolled in regular school?

014 1. 1 ☐ Yes – *ASK 2a*
2 ☐ No →

When were you last enrolled?

015 Month _____ Year _____ *SKIP to Check Item B*

2a. What grade are you attending?

016 2a. 1 Elementary 1 2 3 4 5 6 7 8
2 High school 1 2 3 4
3 College 1 2 3 4 5 6+

b. Are you enrolled as a full-time or part-time student?

017 b. 1 ☐ Full-time
2 ☐ Part-time

CHECK ITEM A

Refer to item 92R on Information Sheet

☐ Respondent not in school in 1969 – *ASK 3a*
☐ Respondent in school in 1969 – *SKIP to Check Item C*

CHECK ITEM B

Refer to item 92R on Information Sheet

☐ Respondent in school in 1969 – *SKIP to Check Item F, page 3*
☐ All others – *SKIP to 23a, page 4*

3a. At this time last year, you were not enrolled in school. How long had you been out of school before returning?

018 3a. Years _____

b. Why did you return?

019 b. ☐

c. In what curriculum are you enrolled?

020 c. ☐☐ _____ *SKIP to 5*

CHECK ITEM C

Refer to items 2a and 92R on Information Sheet

☐ Respondent in high school in 1969, college now – *SKIP to 5*
☐ Other – *ASK 4*

4. Are you attending the same school as you were at this time last year?

021 4. 1 ☐ Yes – *SKIP to 10*
2 ☐ No – *ASK 5*

5. What is the name of the school you now attend?

5.

6. Where is this school located?

022 6. ☐☐
City _____
County _____
State _____

7. Is this school public or private?

023 7. 1 ☐ Public
2 ☐ Private

8. When did you enter this school?

024 8.
Month _____ Year _____

CHECK ITEM D

Refer to item 2a and item 92R on Information sheet

☐ Respondent in college I now – *SKIP to 15a*
☐ Respondent in high school I now } *SKIP to 23a, page 4*
☐ Respondent not in school in 1969 }
☐ Other – *ASK 9*

9. Why did you change schools?

025 9. ☐

10. Would you say you now like school more, about the same, or less than you did last year?

026 10. 1 ☐ More } *ASK 11*
2 ☐ Less }
3 ☐ About the same – *SKIP to 12*

11. Why do you like it more (less)?

027 11. ☐

I. EDUCATIONAL STATUS – Continued

12. Are you enrolled in the same curriculum now as you were last year?

028 12. ☐ Yes → 1 ☐ College – *SKIP to 15a*; 2 ☐ High school; 3 ☐ Elementary → *SKIP to 23a, page 4*
4 ☐ No – *ASK 13*

13. In what curriculum are you enrolled now?

029 13. ☐☐

14. How did you happen to change your curriculum?

030 14. ☐

☐ Respondent not now in college – *SKIP to Check Item E*

15a. How much is the full-time tuition this year at the college you attend?

031 15a. $_____

b. Do you have a scholarship, fellowship, assistantship, or other type of financial aid this year?

032 b. 1 ☐ Yes – *ASK c*
2 ☐ No – *SKIP to Check Item E*

c. What kind?

033 c. 1 ☐ Scholarship; 2 ☐ Fellowship; 3 ☐ Assistantship; 4 ☐ Loan; 5 ☐ Other – *Specify* _____

d. How much is it per year?

034 d. $_____

CHECK ITEM E

Refer to item 92R on Information Sheet
☐ Respondent in college 3–6 in 1969 – *ASK 16a*
☐ Other – *SKIP to 23a, page 4*

16a. Have you received a degree since last year at this time?

035 16a. 1 ☐ Yes – *ASK b*
2 ☐ No – *SKIP to 23a, page 4*

b. What degree was it?

036 b. 1 ☐ Bachelor's (B.A., B.S., A.B.)
2 ☐ Master's (M.S., M.B., M.B.A.)
3 ☐ Doctor's (Ph.D.)
4 ☐ Other – *Specify*

c. In what field did you receive your degree?

037 c. ☐☐

d. Why did you decide to continue your education after receiving this degree?

038 d. _____

SKIP to 23a, page 4

CHECK ITEM F

Refer to item 92R on Information Sheet
☐ Respondent in high school 1–3 last year – *ASK 17a*
☐ Respondent in high school 4 last year – *SKIP to 18a*
☐ Respondent in college 1–3 last year – *SKIP to 20a*
☐ Respondent in college 4+ last year – *SKIP to 21a*
☐ Respondent in elementary school last year – *ASK 17a*

17a. At this time last year, you were attending your_____year of high school. Did you complete that year?

039 17a. 1 ☐ Yes
2 ☐ No

b. Why did you drop out of high school?

040 b. ☐

c. Do you expect to return?

041 c. 1 ☐ Yes – *ASK d*
2 ☐ No – *SKIP to 26a, page 5*

d. When do you expect to return?

042 d. _____

SKIP to 23a, page 4

18a. Did you graduate from high school?

043 18a. 1 ☐ Yes – *SKIP to Check Item G*
2 ☐ No – *ASK b*

b. Why not?

044 b. ☐

CHECK ITEM G

Refer to item 93R on Information Sheet
☐ Respondent had planned to enter college when last interviewed – *ASK 19a*
☐ Respondent had not planned to enter college when last interviewed – *SKIP to 23a, page 4*
☐ Respondent not asked about educational goal – *SKIP to 23a, page 4*

USCOMM-DC

I. EDUCATIONAL STATUS – Continued

19a. When we last interviewed you, you said you planned to go to college. Have your plans changed?

045 **19a.**
1 ☐ Yes – *ASK b*
2 ☐ No – *SKIP to c*

b. What caused your plans to change?

046 **b.**
1 ☐ Poor grades, lacked ability, wasn't accepted because of low grades, etc.
2 ☐ Economic reasons (couldn't afford, had to work instead, unable to obtain financial assistance)
3 ☐ Disliked school, lost interest, had enough school
4 ☐ Marriage, pregnancy or children
5 ☐ Personal health reasons
6 ☐ Other – *Specify* _____
SKIP to d

c. Why are you presently not enrolled in college?

047 **c.**
1 ☐ Economic reasons (couldn't afford, have to work, unable to obtain financial assistance, etc.)
2 ☐ Was rejected or turned down
3 ☐ Waiting to be accepted by a school
4 ☐ Marriage, pregnancy or children
5 ☐ Personal health reasons
6 ☐ Other – *Specify* _____

d. When do you plan to enroll in college?

048 **d.**
Month _____ Year _____ – *SKIP to 23a*
x ☐ Don't plan to enroll – *SKIP to 26a, page 5*

20a. Last year at this time you were in college. Why did you decide to drop out?

☐☐ **20a.** _____

049
x ☐ Received degree – *SKIP to 22a*

b. Do you expect to return?

050 **b.**
1 ☐ Yes – *ASK c*
2 ☐ No – *SKIP to 26a*

c. When do you think you will return?

c.
051
Month _____ Year _____ – *SKIP to 23a*

21a. Last year at this time you were in college Did you receive a degree?

052 **21a.**
1 ☐ Yes – *SKIP to 22a*
2 ☐ No – *ASK b*

b. Why did you decide to drop out?

☐☐
053 **b.** _____

c. Do you expect to return?

054 **c.**
1 ☐ Yes – *ASK d*
2 ☐ No – *SKIP to 26a*

d. When?

☐☐
055 **d.** Month ☐☐ Year _____ – *SKIP to 23a*

22a. What degree did you receive?

056 **22a.**
1 ☐ Associate (2 year course)
2 ☐ Bachelor's (B.A., B.S., A.B.)
3 ☐ Master's (M.S., M.B., M.B.A.)
4 ☐ Doctor's (Ph.D.)
5 ☐ Other – *Specify* _____

b. In what field of study did you receive your degree?

☐☐
057 **b.**

23a. How much education would you like to get?

058 **23a.** High school 1 ☐ 1 yr. 2 ☐ 2 yrs. 3 ☐ 3 yrs. 4 ☐ 4 yrs.
College
5 ☐ 2 yrs. (complete junior college)
6 ☐ 4 yrs. (graduate from 4-year college)
7 ☐ 6 yrs. (master's degree or equivalent)
8 ☐ 7 + yrs. (Ph.D. or professional degree)

b. As things stand now how much education do you think you will actually get?

059 **b.** High school 1 ☐ 1 yr. 2 ☐ 2 yrs. 3 ☐ 3 yrs. 4 ☐ 4 yrs.
College
5 ☐ 2 yrs. (complete junior college)
6 ☐ 4 yrs. (graduate from 4-year college)
7 ☐ 6 yrs. (master's degree or equivalent)
8 ☐ 7 + yrs. (Ph.D. or professional degree)

CHECK ITEM H

Refer to item 23a and item 93R on Information Sheet
☐ Educational goal different from when last interviewed – *ASK 24*
☐ Educational goal same as when last interviewed } *SKIP to 25a*
☐ Respondent not asked about educational goal }

FORM LGT-421 (11-17-69)

I. EDUCATIONAL STATUS – Continued

24. When we last interviewed you, you said you would like to get *(amount of education indicated in 93R).*
Why have you changed your plans?

060 24. ☐

☐ Respondent now attends school – *SKIP to 26a*

25a. Since this time last year have you taken any training courses or educational programs of any kind, either on the job or elsewhere?

061 25a. 1 ☐ Yes – *ASK b*
2 ☐ No – *SKIP to 26a*

b. What kind of training or education program did you take? *(Specify below, then mark one box)*

_____
_____

062 b. 1 ☐ Professional, technical
2 ☐ Managerial
3 ☐ Clerical
4 ☐ Skilled manual
5 ☐ Other

c. Where did you take this training course? *(Specify below, then mark one box)*

_____
_____

063 c. 1 ☐ Business college, technical institute
2 ☐ Company training school
3 ☐ Correspondence course
4 ☐ Regular school
5 ☐ Other

d. How long did you attend this course or program?

064 d.
Months _____
99 ☐ Still attending

e. How many hours per week did you spend on this training?

065 e. 1 ☐ 1–4
2 ☐ 5–9
3 ☐ 10–14
4 ☐ 15–19
5 ☐ 20 or more

f. Did you complete this program?

066 f. 1 ☐ Yes – **When?**
Month _____ Year _____ – *SKIP to h*
2 ☐ No, dropped out – **When?**
Month _____ Year _____ – *ASK g*
x ☐ No, still enrolled – *SKIP to h*

g. Why didn't you complete this program?

067 g. 1 ☐ Found a job
2 ☐ Interfered with school
3 ☐ Too much time involved
4 ☐ Lost interest
5 ☐ Too difficult
6 ☐ Other – *Specify* _____

h. Why did you decide to get more training?

068 h. 1 ☐ To obtain work
2 ☐ To improve current job situation
3 ☐ To get better job than present one
4 ☐ Other – *Specify* _____

i. Do you use this training on your present job?

069 i. 1 ☐ Yes
2 ☐ No
3 ☐ Not employed

26a. Since last year have you obtained a certificate for practicing a profession or trade?

070 26a. 1 ☐ Yes – *ASK b*
2 ☐ No – *SKIP to 27*

b. What type of certificate is (was) it?

☐
071 b.

c. Is this certificate currently valid?

072 c. 1 ☐ Yes
2 ☐ No

Notes

073
074
075

USCOMM-DC

II. CURRENT LABOR FORCE STATUS

27. What were you doing most of LAST WEEK – working, going to school, keeping house or something else?

076
- 1 ☐ WK – Working – *SKIP to 28b*
- 2 ☐ J – With a job but not at work
- 3 ☐ LK – Looking for work
- 4 ☐ S – Going to school
- 5 ☐ KH – Keeping house
- 6 ☐ U – Unable to work – *SKIP to 31*
- 7 ☐ OT – Other – *Specify* → _____

28c. Do you USUALLY work 35 hours or more a week at this job?

077
- 1 ☐ Yes – **What is the reason you worked less than 35 hours LAST WEEK?**
- 2 ☐ No – **What is the reason you USUALLY work less than 35 hours a week?**

(Mark the appropriate reason)

078
- 01 ☐ Slack work
- 02 ☐ Material shortage
- 03 ☐ Plant or machine repair
- 04 ☐ New job started during week
- 05 ☐ Job terminated during week
- 06 ☐ Could find only part-time work
- 07 ☐ Labor dispute
- 08 ☐ Did not want full-time work
- 09 ☐ Full-time work week under 35 hours
- 10 ☐ Attends school
- 11 ☐ Holiday (legal or religious)
- 12 ☐ Bad weather
- 13 ☐ Own illness
- 14 ☐ On vacation
- 15 ☐ Too busy with housework, personal business, etc.
- 16 ☐ Other – *Specify* → _____

(SKIP to 32a and enter job worked at last week)

28a. Did you do any work at all LAST WEEK, not counting work around the house?

☐ Yes ☐ No – *SKIP to 29a*

b. How many hours did you work LAST WEEK at all jobs?

079 _____

CHECK ITEM I

Respondent worked –

080
- 1 ☐ 49 hours or more – *SKIP to 32a and enter job worked at last week*
- 2 ☐ 1–34 hours – *ASK c*
- 3 ☐ 35–48 hours – *ASK d and e*

28d. Did you lose any time or take any time off LAST WEEK for any reason such as illness, holiday, or slack work?

081 ☐ Yes – **How many hours did you take off** _____

oo ☐ No – *Go to 28e*

NOTE: Correct item 28b if lost time not already deducted; if item 28b is reduced below 35 hours, ask item c, otherwise SKIP to 32a.

e. Did you work any overtime or at more than one job LAST WEEK?

082 ☐ Yes – **How many extra hours did you work?** . . . _____

oo ☐ No

NOTE: Correct item 28b if extra hours not already included and SKIP to 32a.

(If "J" in 27, SKIP to b)

29a. Did you have a job (or business) from which you were temporarily absent or on layoff LAST WEEK?

☐ Yes ☐ No – *ASK 30a*

b. Why were you absent from work LAST WEEK?

083
- 1 ☐ Own illness
- 2 ☐ On vacation
- 3 ☐ Bad weather
- 4 ☐ Labor dispute
- 5 ☐ New job to begin within 30 days – *ASK 30c and 30d(2)*
- 6 ☐ Temporary layoff (less than 30 days)
- 7 ☐ Indefinite layoff (30 days or more or no definite recall date) – *ASK 30d(3)*
- 8 ☐ School interfered
- 9 ☐ Other – *Specify* → _____

c. Are you getting wages or salary for any of the time off LAST WEEK?

084
- 1 ☐ Yes
- 2 ☐ No
- 3 ☐ Self-employed

d. Do you usually work 35 hours or more a week at this job?

085 1 ☐ Yes 2 ☐ No

(Go to 32a and enter job held last week)

Notes

FORM LGT-421 (11-17-69)

II. CURRENT LABOR FORCE STATUS – Continued

(If "LK" in 27, *SKIP to b*)

30a. Have you been looking for work during the past 4 weeks?

☐ Yes ☐ No – *SKIP to 31*

b. What have you been doing in the last 4 weeks to find work?

(Mark all methods used; do not read list)

086 00 ☐ Nothing – *SKIP to 31*

Checked with:
- 01 ☐ State employment agency
- 02 ☐ Private employment agency
- 03 ☐ Employer directly
- 04 ☐ Friends or relatives

05 ☐ Placed or answered ads

06 ☐ School employment service

07 ☐ Other – *Specify – e.g., MDTA, union or professional register, etc.*

c. Why did you start looking for work? Was it because you lost or quit a job at that time *(pause)* or was there some other reason?

087
1 ☐ Lost job
2 ☐ Quit job
3 ☐ Wanted temporary work
4 ☐ Children are older
5 ☐ Enjoy working
6 ☐ Help with family expenses
7 ☐ Other – *Specify*

088 **d. (1) How many weeks have you been looking for work?**

(2) How many weeks ago did you start looking for work?

(3) How many weeks ago were you laid off?

Weeks_____

e. Have you been looking for full-time or part-time work?

089
1 ☐ Full-time
2 ☐ Part-time

f. Is there any reason why you could not take a job LAST WEEK?

090
Yes →
1 ☐ Needed at home
2 ☐ Temporary illness
3 ☐ Going to school
4 ☐ Other – *Specify*

5 ☐ No

g. When did you last work at a regular job or business lasting two consecutive weeks or more, either full-time or part-time?

091
1 ☐ January 1, 1969 or later –
Specify

092 Month | Day | Year – *SKIP to 38a*

2 ☐ Before January 1, 1969
3 ☐ Never worked (two weeks or more) } *SKIP to 39a*

31. When did you last work at a regular job or business, lasting two consecutive weeks or more, either full-time or part-time?

093
1 ☐ January 1, 1969 or later –
Specify

Month | Day | Year – *SKIP to 38a*

094 2 ☐ Before January 1, 1969 and "unable" now and "unable" in item 94R on the Information Sheet – *SKIP to 72, page 19*

3 ☐ Never worked (two weeks or more) } *SKIP to 39a*
4 ☐ All others

DESCRIPTION OF JOB OR BUSINESS

32a. Do you have more than one job?

☐ Yes – *Record information about primary job only*

☐ No

b. For whom did you work? *(Name of company, business, organization, or other employer)*

c. In what city and State is . . . located?

095 City_____ State_____

096 **d. What kind of business or industry is this?** *(For example: TV and radio manufacturer, retail shoe store, State Labor Department, farm)*

e. Were you –

097
10 ☐ P – **An employee of a PRIVATE company, business, or individual for wages, salary, or commissions?**
20 ☐ G – **A GOVERNMENT employee (Federal, State, county, or local)?**
30 ☐ O – **Self-employed in your OWN business, professional practice, or farm?**

(If not a farm)
Is this business incorporated?

31 ☐ Yes 32 ☐ No

40 ☐ WP – **Working WITHOUT PAY in family business or farm?**

098 **f. What kind of work were you doing?** *(For example: registered nurse, high school English teacher, waitress)*

g. What were your most important activities or duties? *(For example: selling clothing, typing, keeping account books, filing)*

h. What was your job title?

i. When did you start working for (ENTRY IN 32b)?

099
1 ☐ January 1, 1969 or later –
Specify

100 Month | Day | Year

2 ☐ Before January 1, 1969

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II. CURRENT LABOR FORCE STATUS – Continued

CHECK ITEM J

☐ "P" or "G" in item 32e – *ASK 33a*
☐ "O" or "WP" in item 32e – *SKIP to Check Item K*

33a. Altogether, how much do you usually earn at this job before deductions?

101 33a. $ _____ . _____ (Dollars) (Cents) per: 102
1 ☐ Hour
2 ☐ Day
3 ☐ Week
4 ☐ Biweekly
5 ☐ Month
6 ☐ Year
7 ☐ Other

$ _____ (Dollars only) per:

Specify _____

b. How many hours per week do you usually work at this job?

103 b. Hours _____

c. Do you receive extra pay when you work over a certain number of hours?

104 c. 1 ☐ Yes – *ASK d*
2 ☐ No
3 ☐ No, but received compensating time off } *SKIP to f*
4 ☐ Never work overtime

d. After how many hours do you receive extra pay?

105 d. _____ Hours per day
106 _____ Hours per week

e. For all hours worked over *(entry in d)* are you paid straight time, time and one-half, double time or what?

107 e. 1 ☐ Compensating time off
2 ☐ Straight time
3 ☐ Time and one-half
4 ☐ Double time
5 ☐ Other – *Specify* _____

f. Are your wages (salary) on this job set by a collective bargaining agreement between your employer and a union or employee association?

108 f. 1 ☐ Yes – *ASK g*
2 ☐ No – *SKIP to 35a*

g. What is the name of the union or employee association?

109 g. _____

h. Are you a member of that union or employee association?

110 h. 1 ☐ Yes
2 ☐ No

CHECK ITEM K

111 1 ☐ Respondent a noninterview in 1969 – *SKIP to 35a*
Refer to items 95R and 96R(1) on Information Sheet
2 ☐ Respondent employed in both 1968 and 1969 but with DIFFERENT employers (names of employer in 95R and 96R(1) are different – *ASK 34*
3 ☐ All others – *SKIP to Check Item L*

34. Two years ago you were working at *(name of company in 95R)*. Why did you happen to leave that job?

112 34. _____

CHECK ITEM L

☐ Respondent currently in Labor Force Group A – *ASK 35a*
Respondent currently in Labor Force Group B or C and –
☐ Last worked January 1, 1969 or later – *SKIP to 38a*
☐ Last worked before January 1, 1969 or never worked – *SKIP to 39a*

35a. Before you began to work as a (entry in 32f) for (entry in 32b), did you do any other kind of work for (entry in 32b)?

35a. ☐ Yes – *SKIP to 36a*
00 ☐ No

b. Excluding vacations, during the time you have worked at this job, were there any full weeks in which you didn't work (since January 1, 1969)?

113 b. ☐ Yes – **How many weeks?** _____
☐ No – *SKIP to Check Item M*

c. Why were you not working during these _____ weeks?

114 c. 1 ☐ School
2 ☐ Personal, family reasons
3 ☐ Own illness
4 ☐ Pregnancy
5 ☐ Layoff
6 ☐ Labor dispute
7 ☐ Did not want to work
8 ☐ Other

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II. CURRENT LABOR FORCE STATUS – Continued

CHECK ITEM M

Refer to item 32i

☐ Current job started before January 1, 1969 – *SKIP to Check Item T*

☐ Current job started January 1, 1969 or later – *SKIP to 37*

36a. When did you start working as a (entry in 32f) for (entry in 32b)?

115 **36a.** Month | Day | Year

b. Excluding vacations, during the time you have worked as a (entry in 32f) for (entry in 32b), were there any full weeks in which you didn't work, (since January 1, 1969)?

116 **b.** ☐ Yes – **How many weeks?**_____

00 ☐ No – *SKIP to Check Item N*

c. Why were you not working during these_____ weeks?

117 **c.**

1 ☐ School
2 ☐ Personal, family reasons
3 ☐ Own illness
4 ☐ Pregnancy
5 ☐ Layoff
6 ☐ Labor dispute
7 ☐ Did not want to work
8 ☐ Other

CHECK ITEM N

☐ Item 36a is earlier than January 1, 1969 – *SKIP to Check Item T*

☐ Item 36a is January 1, 1969 or later – *ASK 37*

37. Just before you started on this job, was there a period of a week or more in which you were not working?

37. ☐ Yes – *SKIP to 48*

☐ No – *SKIP to 40*

38a. You said you last worked at a regular job on (entry in 30g or 31).

(Interviewer: Use calendar to determine the number of weeks since respondent last worked.)

That would be about_____ weeks since you last worked. In how many of these weeks were you looking for work or on layoff from a job?

38a.

118 (1)_____ Weeks since last worked

119 (2)_____ Weeks looking or on layoff

CHECK ITEM O

☐ 38a(1) is equal to 38a(2) – *SKIP to 40*

☐ 38a(1) is greater than 38a(2) – *ASK b*

38b. That leaves_____ weeks that you were not working or looking for work. What would you say was the main reason you were not looking for work during that period?

120 **38b.** Weeks _____

121

1 ☐ Personal, family reasons
2 ☐ Ill or disabled, unable to work
3 ☐ In school
4 ☐ Pregnancy
5 ☐ Couldn't find work
6 ☐ Vacation
7 ☐ Did not want to work
8 ☐ Other – *Specify*

SKIP to 40

39a. Since January 1, 1969 have you spent any weeks looking for work or on layoff from a job?

122 **39a.** ☐ Yes – **How many weeks?**_____

00 ☐ No

CHECK ITEM P

Interviewer: Use calendar to determine the number of weeks since last worked.

123 (1) Weeks since January 1, 1969_____

124 (2) Weeks on layoff or looking for work _____

☐ (1) is equal to (2) – *SKIP to Check Item T.*

☐ (1) is greater than (2) – *ASK b*

39b. What would you say was the main reason you were not looking for work during (the rest of) that time?

125 **39b.**

1 ☐ Personal, family reasons
2 ☐ Ill or disabled, unable to work
3 ☐ In school
4 ☐ Retired
5 ☐ Couldn't find work
6 ☐ Vacation
7 ☐ Did not want to work
8 ☐ Other – *Specify*_____

SKIP to Check Item T

Notes

126

127

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III. WORK EXPERIENCE AND ATTITUDES

40. Now let's talk about – The job you worked at before you started to work as a (ENTRY IN 32f OR 40e) for (ENTRY IN 32b OR 40a)

The last job you worked at; that is, the one which ended on (ENTRY IN 30g OR 31.)

(1)

a. For whom did you work? (Name of company, business, organization or other employer)
- a. ☐ Same as 32b – *SKIP to 40b*

b. In what city and State is . . . located?
- 128 b. City, State

c. What kind of business or industry is this? *(For example: TV and radio manufacturer, retail shoe store, State Labor Department, farm)*
- 129 c.

d. Class of worker.
- 130 d. ☐ P ☐ G ☐ O ☐ WP

e. What kind of work were you doing? *(For example: registered nurse, high school English teacher, waitress)*
- 131 e.

f. What were your most important activities or duties? *(For example: selling clothing, typing, keeping account books, filing)*
- f.

g. What was your job title?
- g.

41a. Altogether, how much did you usually earn at this job before all deductions?
- a. 133
- 132 $ _____ per _____

b. How many hours per week did you usually work at this job?
- 134 b. Hours _____

42a. When did you start working as a (ENTRY IN 40e) for (ENTRY IN 40a)?
- a. 135 Month | Day | Year

b. When did you stop working as a (ENTRY IN 40e) for (ENTRY IN 40a)?
- b. 136 Month | Day | Year

43. Why did you happen to leave this job (change the kind of work you were doing)?
- 137

44a. Excluding vacations, during the time you worked at this job were there any full weeks in which you didn't work (since January 1, 1969)?
- a. 138 ☐ Yes – How many weeks? _____ – *ASK b*
  0 ☐ No – *SKIP to Check Item Q*

b. Why were you not working during these . . . weeks?
- 139 b. 1 ☐ Layoff; 2 ☐ Labor dispute; 3 ☐ In school; 4 ☐ Personal family reasons; 5 ☐ Own illness; 6 ☐ Pregnancy; 7 ☐ Did not want to work; 8 ☐ Other

CHECK ITEM Q — Item 42a is: 1. January 1, 1969 or later; 2. Before January 1, 1969
- 1. ☐ – *ASK 45*
- 2. ☐ – *SKIP to Check Item T*

45. Did you do any other kind of work for (ENTRY IN 40a) before (ENTRY IN 42a)?
- 140 1 ☐ Yes – *GO to next column and record information about this work*; 2 ☐ No – *ASK 46*

46. While you were working for (ENTRY IN 40a), were you also working for someone else?
- 141 1 ☐ Yes – *Go to next column and record information about simultaneous job*; 2 ☐ No – *ASK 47*

47. JUST before you started working as a (ENTRY IN 40e) for (ENTRY IN 40a) was there a period of a week or more in which you were not working?
- 142 1 ☐ Yes – *ASK 48*; 2 ☐ No – *Go to next column and record information about previous job*

48. When did this period in which you were not working start?
- 143 Month | Day | Year; X ☐ Never worked before

49a. Interviewer: Determine number of weeks not working. If item 48 is before January 1, 1969, count only weeks since that time.
- 144 a. Weeks not working _____

b. That would be about . . . weeks that you were not working. How many of those weeks were you looking for work or on layoff from a job?
- 145 b. Weeks looking or on layoff _____

CHECK ITEM R — 1. 49a is equal to 49b; 2. 49a is greater than 49b
- 1. ☐ – *SKIP to Check Item S*
- 2. ☐ – *ASK 50*

50a. That leaves . . . weeks that you were not working or looking for work. What would you say was the main reason that you were not looking for work during that period?
- 146 a. 1 ☐ Ill or disabled, unable to work; 2 ☐ In school; 3 ☐ Personal family; 4 ☐ Vacation; 5 ☐ Birth or acquired child(ren) – *ASK b*; 6 ☐ Couldn't find work; 7 ☐ Did not want to work; 8 ☐ Other – *SKIP to Check Item S*

b. When was your baby born (did you assume charge of this child)?
- 147 b. Month | Year; X ☐ Not born yet

c. Were you employed within one year before (this pregnancy, birth of child, child came to live with you)?
- 148 c. 1 ☐ Yes – *ASK d*; 2 ☐ No – *SKIP to Check Item S*

d. Did you receive maternity leave or some assurance that your job would be held for you?
- 149 d. 1 ☐ Yes; 2 ☐ No

CHECK ITEM S — 1. Item 48 is January 1, 1969 or later; 2. Item 48 is before January 1, 1969
- 1. ☐ – *Go to next column and record information about previous job*
- 2. ☐ – *SKIP to Check Item T*

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III. WORK EXPERIENCE AND ATTITUDES – Continued

	(2)	(3)	(4)
	☐ Never worked before – *SKIP to Check Item T*	☐ Never worked before – *SKIP to Check Item T*	☐ Never worked before – *SKIP to Check Item T*
a.	☐ Same as _____	☐ Same as _____	☐ Same as _____
156 b.	City, State	172 b. City, State	194 b. City, State
151 c.		173 c.	195 c.
152 d.	☐ P ☐ G ☐ O ☐ wP	174 d. ☐ P ☐ G ☐ O ☐ wP	196 d. ☐ P ☐ G ☐ O ☐ wP
153 e.		175 e.	197 e.
f.		f.	f.
g.		g.	g.
a.	155	a. 177	a. 199
154	$ _____ per _____	176 $ _____ per _____	198 $ _____ per _____
155 b.	Hours _____	178 b. Hours _____	200 b. Hours _____
157 a.	Month / Day / Year	179 a. Month / Day / Year	201 a. Month / Day / Year
158 b.	Month / Day / Year	180 b. Month / Day / Year	202 b. Month / Day / Year
159		181	203
160 a.	☐ Yes – How many weeks? _____ – *ASK b* 0 ☐ No – *SKIP to Check Item Q*	182 a. ☐ Yes – How many weeks? _____ – *ASK b* 0 ☐ No – *SKIP to Check Item Q*	204 a. ☐ Yes – How many weeks? _____ – *ASK b* 0 ☐ No – *SKIP to Check Item Q*
161 b.	1 ☐ Layoff 2 ☐ Labor dispute 3 ☐ In school 4 ☐ Personal family reasons 5 ☐ Own illness 6 ☐ Pregnancy 7 ☐ Did not want to work 8 ☐ Other	183 b. 1 ☐ Layoff 2 ☐ Labor dispute 3 ☐ In school 4 ☐ Personal family reasons 5 ☐ Own illness 6 ☐ Pregnancy 7 ☐ Did not want to work 8 ☐ Other	205 b. 1 ☐ Layoff 2 ☐ Labor dispute 3 ☐ In school 4 ☐ Personal family reasons 5 ☐ Own illness 6 ☐ Pregnancy 7 ☐ Did not want to work 8 ☐ Other
1.	☐ – *ASK 45*	1. ☐ – *ASK 45*	1. ☐ – *ASK 45*
2.	☐ – *SKIP to Check Item T*	2. ☐ – *SKIP to Check Item T*	2. ☐ – *SKIP to Check Item T*
162	1 ☐ Yes – *GO to next column and record information about this work* 2 ☐ No – *ASK 46*	184 1 ☐ Yes – *GO to next column and record information about this work* 2 ☐ No – *ASK 46*	206 1 ☐ Yes – *GO to next column and record information about this work* 2 ☐ No – *ASK 46*
163	1 ☐ Yes – *Go to next column and record information about simultaneous job* 2 ☐ No – *ASK 47*	185 1 ☐ Yes – *Go to next column and record information about simultaneous job* 2 ☐ No – *ASK 47*	207 1 ☐ Yes – *Go to next column and record information about simultaneous job* 2 ☐ No – *ASK 47*
164	1 ☐ Yes – *ASK 48* 2 ☐ No – *Go to next column and record information about previous job*	186 1 ☐ Yes – *ASK 48* 2 ☐ No – *Go to next column and record information about previous job*	208 1 ☐ Yes – *ASK 48* 2 ☐ No – *Go to next column and record information about previous job*
165	Month / Day / Year X ☐ Never worked before	187 Month / Day / Year X ☐ Never worked before	209 Month / Day / Year X ☐ Never worked before
166 a.	Weeks not working _____	188 a. Weeks not working _____	210 a. Weeks not working _____
167 b.	Weeks looking or on layoff _____	189 b. Weeks looking or on layoff _____	211 b. Weeks looking or on layoff _____
1.	☐ – *SKIP to Check Item S*	1. ☐ – *SKIP to Check Item S*	1. ☐ – *SKIP to Check Item S*
2.	☐ – *ASK 50*	2. ☐ – *ASK 50*	2. ☐ – *ASK 50*
168 a.	1 ☐ Ill or disabled, unable to work 2 ☐ In school 3 ☐ Personal family 4 ☐ Vacation 5 ☐ Birth or acquired child(ren) – *ASK b* 6 ☐ Couldn't find work 7 ☐ Did not want to work 8 ☐ Other *SKIP to Check Item S*	190 a. 1 ☐ Ill or disabled, unable to work 2 ☐ In school 3 ☐ Personal family 4 ☐ Vacation 5 ☐ Birth or acquired child(ren) – *ASK b* 6 ☐ Couldn't find work 7 ☐ Did not want to work 8 ☐ Other *SKIP to Check Item S*	212 a. 1 ☐ Ill or disabled, unable to work 2 ☐ In school 3 ☐ Personal family 4 ☐ Vacation 5 ☐ Birth or acquired child(ren) – *ASK b* 6 ☐ Couldn't find work 7 ☐ Did not want to work 8 ☐ Other *SKIP to Check Item S*
169 b.	Month / Year X ☐ Not born yet	191 b. Month / Year X ☐ Not born yet	213 b. Month / Year X ☐ Not born yet
170 c.	1 ☐ Yes – *ASK d* 2 ☐ No – *SKIP to Check Item S*	192 c. 1 ☐ Yes – *ASK d* 2 ☐ No – *SKIP to Check Item S*	214 c. 1 ☐ Yes – *ASK d* 2 ☐ No – *SKIP to Check Item S*
171 d.	1 ☐ Yes 2 ☐ No	193 d. 1 ☐ Yes 2 ☐ No	215 d. 1 ☐ Yes 2 ☐ No
1.	☐ – *Go to next column and record information about previous job*	1. ☐ – *Go to next column and record information about previous job*	1. ☐ – *Go to next column and record information about previous job*
2.	☐ – *SKIP to Check Item T*	2. ☐ – *SKIP to Check Item T*	2. ☐ – *SKIP to Check Item T*

III. WORK EXPERIENCE AND ATTITUDES – Continued

CHECK ITEM T

Respondent is in –
- ☐ Labor Force Group A ("WK" or "J" in 27 or "Yes" in 28a or 29a) – *SKIP to Check Item U*
- ☐ Labor Force Group B ("LK" in 27 or "Yes" in 30a) – *SKIP to 53a*
- ☐ Labor Force Group C (All others) – *ASK 51a*

51a. Do you intend to look for work of any kind in the next 12 months?

282 **51a.**
- 1 ☐ Yes – definitely } *ASK b*
- 2 ☐ Yes – probably } *ASK b*
- ☐ Maybe – **What does it depend on?** _____ } *SKIP to 52a*
- 3 ☐ No } *SKIP to 52a*
- 4 ☐ Don't know } *SKIP to 52a*

b. When do you intend to start looking for work?

283 **b.** Month _____

c. What kind of work do you think you will look for?

284 **c.** _____

d. What will you do to find work? *(Mark as many as apply)*

285 **d.** Check with
- 01 ☐ School employment service (or counselor)
- 02 ☐ State employment agency
- 03 ☐ Private employment agency
- 04 ☐ Directly with employer
- 05 ☐ Friends or relatives
- 06 ☐ Place or answer newspaper ads
- 07 ☐ Other – *Specify* _____

52a. Why would you say that you are not looking for work at this time?

286 **52a.**
- 1 ☐ School
- 2 ☐ Health reasons
- 3 ☐ Husband (parents) would not permit
- 4 ☐ Believes no work available
- 5 ☐ Does not want to work at this time of year
- 6 ☐ Pregnancy
- 7 ☐ Personal, family reasons
- 8 ☐ Other or no reason

b. If you were offered a job by same employer in THIS AREA, do you think you would take it?

287 **b.**
- 01 ☐ Yes, definitely
- 02 ☐ Yes, if it is something I can do
- 03 ☐ Yes, if satisfactory wage
- 04 ☐ Yes, if satisfactory location
- 05 ☐ Yes, if child care available
- 06 ☐ Yes, if husband agrees
- 07 ☐ Yes, if other _____

} *ASK c*

- 08 ☐ No, health won't permit
- 09 ☐ No, it will interfere with school
- 10 ☐ No, parents (husband) don't want me to
- 11 ☐ No, too busy with home and/or family
- 12 ☐ No, other _____

} *SKIP to Check Item X*

c. How many hours per week would you be willing to work?

288 **c.**
- 1 ☐ 1–4
- 2 ☐ 5–14
- 3 ☐ 15–24
- 4 ☐ 25–34
- 5 ☐ 35–40
- 6 ☐ 41–48
- 7 ☐ 49 or more

d. What kind of work would it have to be?

289 **d.** _____

e. What would the wage or salary have to be?

290 **e.** $ _____ . _____ (Dollars) (Cents) per:

$ _____ (Dollars only) per:

291
- 1 ☐ Hour
- 2 ☐ Day
- 3 ☐ Week
- 4 ☐ Biweekly
- 5 ☐ Month
- 6 ☐ Year
- 7 ☐ Other – *Specify* _____

SKIP to Check Item X

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III. WORK EXPERIENCE AND ATTITUDES – Continued

53a. What type of work are you looking for?

292 53a. ☐☐☐

b. What would the wage or salary have to be for you to be willing to take it?

293 b. 294

$ _____ . _____ per: (Dollars) (Cents)

$ _____ per: (Dollars only)

1 ☐ Hour
2 ☐ Day
3 ☐ Week
4 ☐ Biweekly
5 ☐ Month
6 ☐ Year
7 ☐ Other → Specify _____

c. Are there any restrictions, such as hours or location of job that would be a factor in your taking a job?

295 c.
1 ☐ Yes – *ASK d*
2 ☐ No – *SKIP to 54a*

d. What are these restrictions?

☐ 296 d. _____

_____

☐ Respondent has no children in the household – *SKIP to Check Item X*

54a. Will it be necessary for you to make any special arrangements for the care of your child(ren), if you find a job?

297 54a.
1 ☐ Yes – *ASK b*
☐ No – **Why not?** _____ *SKIP to Check Item X*

b. What arrangements will you make?

b. Child will be cared for:

298
1 ☐ In own home by relative
2 ☐ In own home by nonrelative
3 ☐ In relative's home
4 ☐ In nonrelative's home
5 ☐ At school or group care center (day care center, nursery school, after-school center, settlement house, etc.)
6 ☐ Don't know

SKIP to Check Item X

CHECK ITEM U

Respondent –
☐ Was in Labor Force Group C last year *(item 94R on Information Sheet)* – *ASK 55*
☐ All others – *SKIP to 56*

55. At this time last year, you were not looking for work. What made you decide to take a job?

299 55.
1 ☐ Recovered from illness
2 ☐ Bored
3 ☐ Completed education
4 ☐ Needed money
5 ☐ Other – *Specify* _____

56. How do you feel about the job you have now? Do you like it very much, like it fairly well, dislike it somewhat, dislike it very much?

300 56.
1 ☐ Like it very much
2 ☐ Like it fairly well
3 ☐ Dislike it somewhat
4 ☐ Dislike it very much

57. What are the things you like best about your job?

☐☐ 301 57. (1)
☐☐ 302 (2)
☐☐ 303 (3)

58. What are the things about your job that you don't like?

☐☐ 304 58. (1)
☐☐ 305 (2)
☐☐ 306 (3)

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III. WORK EXPERIENCE AND ATTITUDES – Continued

59. Suppose someone IN THIS AREA offered you a job in the same line of work you're in now. How much would the new job have to pay for you to be willing to take it?

(If amount given per hour, record dollars and cents. Otherwise, round to the nearest dollar.)

59. 387 $_____ . _____ per: *(Dollars) (Cents)*

$_____ per: *(Dollars only)*

388
- 01 ☐ Hour
- 02 ☐ Day
- 03 ☐ Week
- 04 ☐ Biweekly
- 05 ☐ Month
- 06 ☐ Year
- 07 ☐ Other – *Specify* _____

389
- 08 ☐ I wouldn't take it at any conceivable pay
- 09 ☐ I would take a steady job at same or less pay
- 10 ☐ Would accept job; don't know specific amount

CHECK ITEM V

- ☐ Respondent married – *SKIP to Check Item W*

Respondent not married and:

- ☐ Is enrolled in school – *SKIP to Check Item W*
- ☐ All others – *ASK 60*

60. What if this job were IN SOME OTHER PART OF THE COUNTRY – how much would it have to pay in order for you to be willing to take it?

(If amount given per hour, record dollars and cents. Otherwise, round to the nearest dollar.)

60. 389 $_____ . _____ per: *(Dollars) (Cents)*

$_____ per: *(Dollars only)*

390
- 01 ☐ Hour
- 02 ☐ Day
- 03 ☐ Week
- 04 ☐ Biweekly
- 05 ☐ Month
- 06 ☐ Year
- 07 ☐ Other – *Specify* _____

391
- 08 ☐ I wouldn't take it at any conceivable pay
- 09 ☐ I would take a steady job at same or less pay
- 10 ☐ Would accept job; don't know specific amount
- 11 ☐ Depends on location, cost of living

CHECK ITEM W

Refer to item 94R on the Information Sheet

- ☐ Respondent in Labor Force Group A in 1969 – *ASK 61a*
- ☐ All other – *SKIP to check box before 62a*

61a. Would you say you like your present job more, less, or about the same as (the job you held) last year?

61a. 392
- 1 ☐ More } *ASK b*
- 2 ☐ Less }
- 3 ☐ Same – *SKIP to 62a*

b. What would you say is the main reason that you like your present job (more, less)?

392 b. ☐☐

☐ Respondent has no children in the household – *SKIP to Check Item X*

62a. Is it necessary for you to make any regular arrangements for the care of your child(ren) while you are working?

62a. 393
- 1 ☐ Yes – *ASK b and c*
- ☐ No – **Why not?** _____ *SKIP to Check Item X*

b. What arrangements have you made?

394 b. Child is cared for:
- 1 ☐ In own home by relative
- 2 ☐ In own home by nonrelative
- 3 ☐ In relative's home
- 4 ☐ In nonrelative's home
- 5 ☐ At school or group care center (day care center, day nursery, nursery school, after-school center, settlement house, etc.)
- 6 ☐ Don't know

c. What is the cost of these child care arrangements?

395 c. 396 $_____ per:
- 1 ☐ Hour
- 2 ☐ Day
- 3 ☐ Week
- 4 ☐ Month
- 5 ☐ Other – *Specify* _____
- 6 ☐ No cost

FORM L.S.T.-421 (11-17-69)

III. WORK EXPERIENCE AND ATTITUDES – Continued

CHECK ITEM X

Respondent is NOT currently enrolled in school AND is now in –
- ☐ Labor Force Group A ("AK" or "J" in 27 or "Yes" in 28a or 29a) } *SKIP to 64a*
- ☐ Labor Force Group B ("LK" in 27 or "Yes" in 30a) } *SKIP to 64a*
- ☐ Labor Force Group C (All others) } *SKIP to 64a*
- ☐ Respondent is attending school

63a. If, by some chance, you (and your husband) were to get enough money to live comfortably without working, do you think you would work anyway?

317 **63a.** 1 ☐ Yes – *ASK b*
2 ☐ No – *SKIP to c*
3 ☐ Undecided – *SKIP to d*

b. Why do you feel you would work?

318 b. _____

SKIP to 64a

c. Why do you feel you would not work?

319 c. _____

SKIP to 64a

d. On what would it depend?

320 d. _____

64a. Would you say that during the past year there has been any change in your feeling about having a job outside the home for pay?

321 **64a.** 1 ☐ Yes – *ASK b and c*
2 ☐ No } *SKIP to 65*
3 ☐ Don't know }

b. In what way has your feeling changed?

322 b. _____

c. Why would you say your thinking has changed?

323 c. _____

Notes

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65. We would like to find out whether people's outlook on life has any effect on the kind of jobs they have, the way they look for work, how much they work, and matters of that kind. On each of these cards is a pair of statements numbered 1 and 2. For each pair, please select the ONE statement which is closer to your opinion. In addition, tell us whether the statement you select is MUCH CLOSER to your opinion or SLIGHTLY CLOSER.

In some cases you may find that you believe both statements, in other cases you may believe neither one. Even when you feel this way about a pair of statements, select the one statement which is more nearly true in your opinion.

Try to consider each pair of statements separately when making your choices; do not be influenced by your previous choices.

---

a. 1 ☐ Many of the unhappy things in people's lives are partly due to bad luck.

2 ☐ People's misfortunes result from the mistakes they make.

Is this statement much closer or slightly closer to your opinion?

324* 8 ☐ Much 9 ☐ Slightly

---

b. 1 ☐ In the long run, people get the respect they deserve in this world.

2 ☐ Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

Is this statement much closer or slightly closer to your opinion?

325* 8 ☐ Much 9 ☐ Slightly

---

c. 1 ☐ Without the right breaks, one cannot be an effective leader.

2 ☐ Capable people who fail to become leaders have not taken advantage of their opportunities.

Is this statement much closer or slightly closer to your opinion?

326* 8 ☐ Much 9 ☐ Slightly

---

d. 1 ☐ Becoming a success is a matter of hard work; luck has little or nothing to do with it.

2 ☐ Getting a good job depends mainly on being in the right place at the right time.

Is this statement much closer or slightly closer to your opinion?

327* 8 ☐ Much 9 ☐ Slightly

---

e. 1 ☐ What happens to me is my own doing.

2 ☐ Sometimes I feel that I don't have enough control over the direction my life is taking.

Is this statement much closer or slightly closer to your opinion?

328* 8 ☐ Much 9 ☐ Slightly

---

f. 1 ☐ When I make plans, I am almost certain that I can make them work.

2 ☐ It is not always wise to plan too far ahead, because many things turn out to be a matter of good or bad fortune anyhow.

Is this statement much closer or slightly closer to your opinion?

329* 8 ☐ Much 9 ☐ Slightly

---

g. 1 ☐ In my case, getting what I want has little or nothing to do with luck.

2 ☐ Many times we might just as well decide what to do by flipping a coin.

Is this statement much closer or slightly closer to your opinion?

330* 8 ☐ Much 9 ☐ Slightly

III. WORK EXPERIENCE AND ATTITUDES – Continued

65h. 1 ☐ Who gets to be boss often depends on who was lucky enough to be in the right place first.

2 ☐ Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

331* **Is this statement much closer or slightly closer to your opinion?**

8 ☐ Much 9 ☐ Slightly

---

i. 1 ☐ Most people don't realize the extent to which their lives are controlled by accidental happenings.

2 ☐ There is really no such thing as "luck."

332* **Is this statement much closer or slightly closer to your opinion?**

8 ☐ Much 9 ☐ Slightly

---

j. 1 ☐ In the long run, the bad things that happen to us are balanced by the good ones.

2 ☐ Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

333* **Is this statement much closer or slightly closer to your opinion?**

8 ☐ Much 9 ☐ Slightly

---

k. 1 ☐ Many times I feel that I have little influence over the things that happen to me.

2 ☐ It is impossible for me to believe that chance or luck plays an important role in my life.

334* **Is this statement much closer or slightly closer to your opinion?**

8 ☐ Much 9 ☐ Slightly

Notes

335
336
337

USCOMM-DC

IV. FUTURE JOB PLANS

66. Now I would like to talk to you about your future job plans. What kind of work would you like to be doing when you are 35 years old?

338 66. _____

339 1 ☐ Married, keeping house, raising family
2 ☐ Same as present job
3 ☐ Don't know

CHECK ITEM Y

340 *Refer to Item 97R on the Information Sheet*
1 ☐ Respondent's future job plans are the same as when last interviewed – *(Entries in 66 and item 97R on the Information Sheet are the same) – SKIP to Check Item Z*
2 ☐ Respondent's future job plans differ from when last interviewed – *(Entries in 66 and item 97R of Information Sheet differ) – ASK 67*
3 ☐ Respondent not asked about future job plans – *SKIP to Check Item Z*

67. When we last interviewed you, you said you thought that you'd like to be *(entry in item 97R of Information Sheet)*. Why would you say you have changed your plans?

341 67. _____

V. HEALTH

CHECK ITEM Z

☐ Respondent is currently in school – *ASK 68a*
☐ Respondent is not currently enrolled in school – *SKIP to 68b*

68a. Do you have any health problems that limit in any way your activity in school?

342 68a. 1 ☐ Yes – *SKIP to 69*
2 ☐ No – *ASK b*

b. Do you have any health problems that limit in any way the amount or kind of work you can do?

343 b. 1 ☐ Yes – *SKIP to 69*
2 ☐ No – *ASK c*

c. Do you have any health problems that in any way limit your other activities?

344 c. 1 ☐ Yes – *ASK 69*
2 ☐ No – *SKIP to 70*

69. How long have you been limited in this way?

345 69. Years_____

☐ Respondent not married – *SKIP to 72a*

70. Does your husband's health limit the amount or kind of work he can do?

346 70. 1 ☐ Yes – *ASK 71*
2 ☐ No – *SKIP to 72*

71. How long has he been limited in this way?

347 71. Years_____

Notes

FORM LGT-421 (11-17-69)

VI. ASSETS AND INCOME

72a. So far as your overall financial position is concerned, would you say you are better off, about the same, or worse off now than you were at this time last year?

348 **72a.** 1 ☐ Same – *SKIP to Check Item AA*
2 ☐ Better off } *ASK b*
3 ☐ Worse off }

b. In what ways are you (better, worse) off?

349 **b.** ☐

CHECK ITEM AA

☐ Respondent (or husband) is NOT head of household – *SKIP to 74a*
☐ Respondent (or husband) is head of household – *ASK 73a*

73a. In the last 12 months, did you (or your husband) receive financial assistance from any of your relatives?

350 **73a.** 1 ☐ Yes – *ASK b*
2 ☐ No – *SKIP to 74a*

b. From whom?

351 **b.** ☐

c. How much did you receive?

c.
352 $_____

Now I would like to ask a few questions about your income in the last 12 months.

	Respondent	Husband ☐ Not married
74a. How much did you (or your husband) receive from wages, salary, commissions, or tips from all jobs, before deductions for taxes or anything else?	353 **74a.** $_____ ☐ None	358 $_____ ☐ None
b. Did you (or your husband) receive any income from working on your own or in your own business or farm? $_____ (Gross income) less $_____ (Expenses) = $_____ (Net Income)	**b.** ☐ Yes – **How much?** 354 $_____ ☐ No	☐ Yes – **How much?** 359 $_____ ☐ No
c. Did you (or your husband) receive any unemployment compensation?	**c.** ☐ Yes 355 **(1) How many weeks?** _____ 356 **(2) How much?** $_____ ☐ No	☐ Yes 360 **(1) How many weeks?** _____ 361 **(2) How much?** $_____ ☐ No
d. Did you (or your husband) receive any other income, such as rental income, interest or dividends, income as a result of disability or illness, etc.?	**d.** ☐ Yes – **How much?** 357 $_____ ☐ No	☐ Yes – **How much?** 362 $_____ ☐ No

CHECK ITEM BB

☐ Respondent (and husband) lives alone – *SKIP to 75b*
☐ All others – *ASK 75a (if two or more RELATED respondents in household, ASK 75a–b only once, and transcribe answers from the first to the other questionnaires).*

75a. In the past 12 months, what was the total income of **ALL** family members living here?

(Show flashcard)

363 **75a.**
01 ☐ Under $1,000
02 ☐ $1,000–$1,999
03 ☐ 2,000– 2,999
04 ☐ 3,000– 3,999
05 ☐ 4,000– 4,999
06 ☐ 5,000– 5,999
07 ☐ 6,000– 7,499
08 ☐ 7,500– 9,999
09 ☐ 10,000–14,999
10 ☐ 15,000–24,999
11 ☐ 25,000 and over

b. Did anyone in this family receive any welfare or public assistance in the last 12 months?

364 **b.** 1 ☐ Yes
2 ☐ No

USCOMM-DC

VII. FAMILY BACKGROUND

76a. How many persons not counting yourself (or your husband) are dependent upon you for at least one-half of their support?

76a.
365 Number_____
0 ☐ None – *SKIP to Check Item CC*

b. Do any of these dependents live somewhere else other than here at home with you?

b.
366 ☐ Yes – **How many?**_____ – *ASK c*
0 ☐ No – *SKIP to Check Item CC*

c. What is their relationship to you?

☐
c.
367

CHECK ITEM CC

368 *Refer to name and address label on cover page*
1 ☐ Respondent lives in same area (SMSA or county) as when last interviewed – *SKIP to 79*
2 ☐ Respondent lives in different area (SMSA or county) than when last interviewed – *ASK 77a*

77a. When we last interviewed you, you were living in *(city in address on cover page)*. How many miles from here is that?

77a.
369 Miles_____

☐
b. How did you happen to move here?
370 b.

☐ Respondent currently in school – *SKIP to 78c*

78a. Did you have a job lined up here at the time you moved?

78a.
371 1 ☐ Yes, different from job held at time of move
2 ☐ Yes, same as job held at time of move
3 ☐ Yes, transferred job in same company
SKIP to c
4 ☐ No – *ASK b*

b. How many weeks did you look before you found work?

b.
372 Weeks_____
00 ☐ Did not look for work
99 ☐ Still haven't found work

c. Since we last interviewed you, have you lived in any area (SMSA or county) other than the present one or the one in which you lived when we interviewed you last?

c.
373 ☐ Yes – **How many?** _____
0 ☐ No
SKIP to Check Item DD

79. Have you lived in any area (SMSA or county) other than the present one since we last interviewed you?

79.
374 ☐ Yes – **How many?** _____
0 ☐ No

CHECK ITEM DD

375
1 ☐ Father lives in household
2 ☐ Father deceased
SKIP to Check Item EE
3 ☐ Other – *ASK 80a*

80a. During the past 12 months, about how many weeks did your father work either full-time or part-time (not counting work around the house)?

80a.
376 Weeks_____
00 ☐ Did not work
99 ☐ Don't know
SKIP to Check Item EE

b. Did your father usually work full-time or part-time?

b.
377 1 ☐ Full-time
2 ☐ Part-time

c. What kind of work was he doing? *(If more than one, record the one worked at longest)*

☐☐☐
378 c.

CHECK ITEM EE

379
1 ☐ Mother lives in household
2 ☐ Mother deceased
SKIP to FF
3 ☐ Other – *ASK 81a*

FORM LGT-421 (11-17-69)

VII. FAMILY BACKGROUND – Continued

81a. During the past 12 months, about how many weeks did your mother work either full-time or part-time (not counting work around the house)?

380 Weeks_____

00 ☐ Did not work
99 ☐ Don't know
SKIP to FF

b. Did your mother usually work full-time or part-time?

381 b.
1 ☐ Full-time
2 ☐ Part-time

c. What kind of work was she doing?
(If more than one, record the one worked at longest)

382 c. ☐☐☐

CHECK ITEM FF

Refer to item 98R on Reference Sheet

☐ Marital status has changed since 1969 – *ASK 82*

☐ Marital status has not changed since 1969 – *SKIP to 83*

82. In what month were you – married? divorced? widowed? separated?

82.
383 Month _____ Year _____

83. How many rooms are there in this house or apartment? Do not count bathrooms, porches, balconies, foyers, halls, or half rooms.

83.
384 Number _____

Notes

385 ☐☐

386 ☐☐

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FORM LGT-421 (11-17-69)

Now I have a few questions about the education and work experience of the other family members living here.

Line number	Name List below all persons living here who are related to respondent. *Enter line number from the Household Record Card in Column 84a.*	Relationship to respondent *Example: wife, son, daughter-in-law, brother, etc.*	Age *As of January 1, 1969*	Persons 6–24 years old			Persons 14 years old and over			
				Is . . . attending or enrolled in school? *Circle* Y – *Yes* N – *No*	*If "Yes" –* What grade (year)? *If "No" –* What is the highest grade (year) . . . ever attended?	Did . . . finish this grade (year)?	In the past 12 months how many weeks did . . . work either full- or part-time (not, counting work around the house)?	If person worked at all in the past 12 months– In the weeks that . . . worked, how many hours did . . . usually work per week?	If person worked at all in the past 12 months– What kind of work was . . . doing in the past 12 months? *If more than one, record the longest.*	
84a	84b	84c	84d	85	86	87	88	89	90	
		387 Respondent								
		388		389 Y N		Y N	390			391
		392		393 Y N		Y N	394			395
		396		397 Y N		Y N	398			399
		400		401 Y N		Y N	402			403
		404		405 Y N		Y N	406			407
		408		409 Y N		Y N	410			411
		412		413 Y N		Y N	414			415
		416		417 Y N		Y N	418			419
		420		421 Y N		Y N	422			423
		424		425 Y N		Y N	426			427
		428		429 Y N		Y N	430			431
		432		433 Y N		Y N	434			435
		436		437 Y N		Y N	438			439
		440		441 Y N		Y N	442			443
		444		445 Y N		Y N	446			447
		448		449 Y N		Y N	450			451
		452		453 Y N		Y N	454			455
		456		457 Y N		Y N	458			459
		460		461 Y N		Y N	462			463
		464		465 Y N		Y N	466			467
		468		469 Y N		Y N	470			471
		472		473 Y N		Y N	474			475
		476		477 Y N		Y N	478			479

91. When we last interviewed you, you mentioned *(read names from item 99R on Information Sheet)* **as persons who will always know where you can be reached even if you moved away. Is this still true?**
(If so, verify the addresses and telephone numbers and enter below. If not, enter information about other persons who will know the respondent's whereabouts.)

	Name	Relationship to respondent	Address	Telephone number
(1)				
(2)				

Notes

INFORMATION SHEET
DATA FROM 1969 INTERVIEWS

92R. Whether Respondent was attending or enrolled in school in 1969

480 1 ☐ Yes
2 ☐ No

Grade Respondent was attending OR highest year of regular school completed:

481 0 ☐ None 0
1 ☐ Elem. 1 2 3 4 5 6 7 8
2 ☐ High 1 2 3 4
3 ☐ College 1 2 3 4 5 6 7+

93R. Respondent's educational goal in 1969

☐ Not asked educational goal
☐ High 1 2 3 4
☐ College 2 4 6 7+

94R. Respondent's labor force status in 1969

482 1 ☐ Unable to work
2 ☐ Labor Force Group A
3 ☐ Labor Force Group B
4 ☐ Labor Force Group C

95R. Name of employer in 19

☐ Not employed in 1968

96R.
(1) Name of employer in 1969

(2) Kind of work done

483 ☐☐☐
x ☐ Not employed in 1969

97R. Plans for age 35 in 1969

☐ Working – *Specify kind*

☐ Married, homemaking
☐ Other or don't know

98R. Marital status last year

484 1 ☐ Married 4 ☐ Separated
2 ☐ Widowed 5 ☐ Never married
3 ☐ Divorced

99R. Names and address of persons who will always know where respondent can be reached.

1.

2.

USCOMM-DC

APPENDIX C

Census Employment Survey

Work History Booklet

(For all persons 16 years old and over)

1970

Form Approved: Budget Bureau No. 41-S69115; Approval Expires June 1971

FORM CES-3
13-17-70I

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

CENSUS EMPLOYMENT SURVEY

WORK HISTORY BOOKLET
(For all persons 16 years old and over)

IDENTIFICATION

Control number (PSU)	(Serial)	(Check)	Line number

Age – CC item 9

CURRENT LABOR FORCE STATUS FOR THIS PERSON – *Interviewer mark from CES-2*

Group		Instructions
☐	I – Respondent **WORKED** or **HAD A JOB** last week *(Entry in CES-2 items 20A or 21B)*	*Fill sections* **A, B1, and D**
☐	II – Respondent **LOOKING** for work, on **LAYOFF** or **WAITING TO START** a new job. *(Entry in CES-2 item 22C)*	*Fill sections* **A, B2, and D**
☐	III – Respondent – **NOT IN LABOR FORCE** *(Entry in CES-2 item 24A)*	*Fill sections* **A and C**

RECORD OF CALLS

Date	Time	Notes
1.	a.m. p.m.	
2.	a.m. p.m.	
3.	a.m. p.m.	
4.	a.m. p.m.	

REASON FOR NONINTERVIEW

Person 16+ with CES-2, items 19–24, completed

1 ☐ Temporarily absent
2 ☐ Never at home
3 ☐ Refusal
4 ☐ Other – *Specify* _____

SECTION A

1. INTERVIEWER CHECK ITEM

010
1 ☐ In past 12 months respondent DID NOT WORK and DID NOT LOOK FOR WORK – *("No" in CES-2, item 35) – SKIP to item 15a*
2 ☐ LOOKED FOR WORK in past 12 months – *(Entry of 1 or more weeks in CES-2, item 36 or 38) – SKIP to item 3*
3 ☐ ALL OTHERS – *ASK item 2*

2. During the past 12 months did you look for work at any time?

011 1 ☐ Yes – *ASK 3*
2 ☐ No – *SKIP to 15a*

3. Now I have some questions about ways you may have looked for work. Did you check with the State Employment Service during the past 12 months?

* 012 1 ☐ Yes
2 ☐ No

4. Did you apply directly to an employer?

3 ☐ Yes
4 ☐ No

5. Did you ask your friends or relatives?

5 ☐ Yes
6 ☐ No

6. Did you check the newspapers?

7 ☐ Yes
8 ☐ No

7. During the past 12 months did you register with any union?

* 013 1 ☐ Yes
2 ☐ No

8. Did you check with a private employment agency, one supported by fees?

3 ☐ Yes
4 ☐ No

9. Did you check with organizations such as community action groups, Urban League, and welfare agencies?

5 ☐ Yes
6 ☐ No

10. *(If male)* **Did you go to special streets or places where employers come to pick up workers?**

7 ☐ Yes
8 ☐ No

11a. Did you use any other way to look for a job in the past 12 months? a.

014 1 ☐ Yes – *ASK 11b*
2 ☐ No – *SKIP to 12*

b. What other way did you use? b.

015 ☐☐

_____

SECTION A – Continued

12. *(ASK if two or more ways of looking for work were mentioned in 3–11)*

Of the ways you mentioned *(Read categories marked "Yes" in 3–11)*, **which way did you use the most?**

016
- 3 ☐ Check with State Employment Service
- 4 ☐ Apply directly to employer
- 5 ☐ Ask friends or relatives
- 6 ☐ Check newspapers
- 7 ☐ Register with union
- 8 ☐ Check private employment agency
- 9 ☐ Check with community organizations
- 0 ☐ Go to special streets
- 1 ☐ Other ways

13. *(ASK only if worked in past 12 months)*

Which way of looking for work got you your present (or most recent) job?

017
- 3 ☐ Check with State Employment Service
- 4 ☐ Apply directly to employer
- 5 ☐ Ask friends or relatives
- 6 ☐ Check newspapers
- 7 ☐ Register with union
- 8 ☐ Check private employment agency
- 9 ☐ Check with community organizations
- 0 ☐ Go to special streets
- 1 ☐ Other ways

14. The last time you looked for a job what was the lowest pay you would have accepted? *(If amount given per hour, record dollars and cents; otherwise, round to the nearest dollar.)*

*(Mark only **one** box and **one** amount)*

018 ☐ Hour. . . . . $_____ . _____ *(Dollars)* *(Cents)*

OR

019 ☐ Day
020 ☐ Week
021 ☐ Month
022 ☐ Year

$_____.00

15a. Did you complete a job training program in high school, trade school, or junior college? (Examples: vocational, business, or technical)

a. 023
- 1 ☐ Yes – *ASK 15b*
- 2 ☐ No – *SKIP to 16 for males; 17 for females*

b. What kind of work were you trained for? (Occupation). . . . . b. 024 ☐☐☐ Occupation

c. In what year did you complete the (most recent) program?. . . . . c. 025 19_____

d. Have you ever used any of this training on any of your jobs?. . . d. 026
- 1 ☐ Yes
- 2 ☐ No

If female, SKIP to 17a

16a. *(If male)* **Did you complete a job training course in the ARMED FORCES?** *(Exclude basic training)*

a. 027
- 1 ☐ Yes – *ASK 16b*
- 2 ☐ No
- 3 ☐ Did not serve in Armed Forces

SKIP to 16e

b. What kind of work were you trained for? (Occupation). . . . . b. 028 ☐☐☐ Occupation

c. In what year did you complete this program? . . . . . c. 029 19_____

d. Have you ever used any of this training on any of your jobs? . . d. 030
- 1 ☐ Yes
- 2 ☐ No

e. Have you ever started in an APPRENTICESHIP PROGRAM? . . e.
- 3 ☐ Yes – *ASK 16f*
- 4 ☐ No – *SKIP to 17a*

f. What kind of work was that for? (Occupation) . . . . . f. 031 ☐☐☐ Occupation

g. Did you complete it?. . . . . g. 032 1 ☐ Yes 2 ☐ No

033 **In what year?** → 19_____

h. Have you ever used any of this training on any of your jobs? . . h. 034
- 1 ☐ Yes
- 2 ☐ No

17a. Have you ever participated in any other training program? (Examples: Upward Bound, Job Corps, or Neighborhood Youth Corps)

a. 035
- 1 ☐ Yes – *ASK 17b–e*
- 2 ☐ No – *SKIP to 18*

b. Which one? . . . . . b. 036
- 1 ☐ Upward Bound
- 2 ☐ Job Corps
- 3 ☐ Neighborhood Youth Corps
- ☐ Other – *Specify* ☐☐☐

c. In what year did you participate?. . . . . c. 037 19_____

d. Did you complete it? . . . . . d. 038
- 1 ☐ Yes
- 2 ☐ No

e. Have you ever used any of this training on any of your jobs? . . e.
- 3 ☐ Yes
- 4 ☐ No

FORM CES-3 (8-17-70)

SECTION A – Continued

18. During the past 12 months did you receive any money from: *(Pause)*

a. Wages, salary (tips, commissions)? . . . . . a.

039 1 ☐ Yes – **How much before deductions?** 040 $ .00
(Nearest dollar)
2 ☐ No

b. Net income from your own business (farm)? . . . . . b.

*041 1 ☐ Yes – **How much was your –**
GROSS income? . . . . $ .00
LESS Your business expenses? $ .00
EQUALS Net income → $ .00
042 x ☐ Lost money
2 ☐ No

c. Workmen's compensation? . . . . . c.

3 ☐ Yes – **How much?** 043 $ .00
4 ☐ No

d. Unemployment compensation? . . . . . d.

5 ☐ Yes – **How much?** 044 $ .00
6 ☐ No

e. Social Security (For example: old age, survivors, disability and health insurance)? . . . . . e.

*045 1 ☐ Yes – **How much?** 046 $ .00
2 ☐ No – *SKIP to 18f*

(1) Do you have any money withheld from your Social Security check for medicare? . . . . . (1)

3 ☐ Yes
4 ☐ No – *SKIP to 18f*

(2) *(If Yes)* **– Is the** *(Read amount)* **you told me you received for Social Security before or after medicare has been deducted?** . . . . . (2)

5 ☐ Before
6 ☐ After

f. Other pensions, such as Veterans, private employer, Government, etc.? f.

7 ☐ Yes – **How much?** 047 $ .00
8 ☐ No

g. Welfare or public assistance (For example: aid to dependent children, old age assistance, aid to the disabled, foster child care)? . . . . . g.

*048 1 ☐ Yes – **How much?** 049 $ .00
2 ☐ No

h. Rents, including that from roomers and boarders? . . . . . h.

3 ☐ Yes – **How much?** 050 $ .00
4 ☐ No

i. Interest or dividends? . . . . . i.

5 ☐ Yes – **How much?** 051 $ .00
6 ☐ No

j. Did YOU have any income or assistance from a source other than those we have already mentioned? . . . . . j.

7 ☐ Yes – **What was that?** – *Specify* →

If Yes →
How much was that? 052 $ .00
8 ☐ No

19. ***NOT USED***

20a. What kind of work did you do at your first full-time regular job after leaving school? . . . . . a.

053 ☐☐☐ Occupation

b. What were your most important activities or duties? . . . . . b.

Activity

054 1 ☐ Still in school
2 ☐ Never worked at a full-time job } *SKIP to 23a*

c. What kind of business or industry was that? . . . . . c.

055 ☐☐☐ Industry

056 1 ☐ Same job as now (CES-2, item 23) – *SKIP to 23a*

d. Were you – d.

*057
1. **An employee of a PRIVATE company, business or individual for wages, salary, or commissions?**
2. **A GOVERNMENT employee (Federal, State, county or local)?**
3. **SELF-EMPLOYED in OWN business, professional practice or farm?**
4. **Working WITHOUT PAY in family business or farm?**

1 ☐ P – Private
2 ☐ G – Government
3 ☐ O – Self-employed
(If not a farm) – **Is this business incorporated?**
4 ☐ Yes 5 ☐ No
6 ☐ WP – Without pay

e. How long did you work at that job? . . . . . e.

058 ☐ Months } ____
059 ☐ Years } *(Number)*

SECTION A– Continued

21a. What type of work have you done the longest since leaving school? a.

060 ☐☐☐ Occupation

061 1 ☐ Same as CES-2, item 23c – *SKIP to 22*
2 ☐ Same as first job after leaving school – *SKIP to 21a*

b. How long did you work at that? b.

062 ☐ Months
063 ☐ Years (*Number*)

22. What kind of industry was that?

064 ☐☐☐ Industry

065 1 ☐ Same as item 23b on CES-2

23a. How many years have you lived at your present address? a.

066 _____ Years
0 ☐ Less than a year – *ASK 23b*

b. How many times have you moved in the last year? b.

067 _____ Times

24. How many years have you lived within the city limits of . . . (this city)?

068 _____ Years
99 ☐ All my life – *SKIP to 28*

For items 25, 26, and 27 *Read all the categories until you obtain a "Yes" response. Mark the appropriate box and write in the name of the State or country in the space provided.*	**25. When you were born did your parents live –**	**26. Five years ago did you live –**	**27. At age 16 did you live –**
a. In this city?	069 1 ☐	070 1 ☐	071 1 ☐
b. In a suburb near a large city?	2 ☐	2 ☐	2 ☐
c. In a large city (over 250,000 pop.)**?**	3 ☐	3 ☐	3 ☐
d. In a medium size city (50–250,000 pop.)**?**	4 ☐	4 ☐	4 ☐
e. In a small city or town (under 50,000 pop.)**?**	5 ☐	5 ☐	5 ☐
f. In open country but not on a farm?	6 ☐	6 ☐	6 ☐
g. On a farm?	7 ☐	7 ☐	7 ☐
h. In the United States? *(If Yes)* – **In what State was that?** *(If No)* – **In what country was that?**	072 ☐☐ _____	073 ☐☐ _____	074 ☐☐ _____

28. *(Omit if Mexico or Puerto Rico is person's place of birth)*

a. Was your father born in the United States? a.
(If Yes) – **In what state was that?**
(If No) – **In what country was that?**

075 ☐☐ _____

b. Was your mother born in the United States? b.
(If Yes) – **In what state was that?**
(If No) – **In what country was that?**

076 ☐☐ _____

29. *(Omit if Mexico or Puerto Rico is entered in items 25 or 28)*

Was a language other than English often spoken by your parents in your home when you were a child?

077 1 ☐ Yes 2 ☐ No
What language was that?
078 ☐ _____

Notes

FORM CES-3 (3-17-70)

SECTION B.1 – For Persons in Labor Force Group I – (worked or had a job last week)

1. Now I'm going to ask you some more questions about your present job. How long have you been working at this job?

085 ☐ Months
086 ☐ Years — *(Number)*

2. In addition to that job, how many other employers did you work for last week? *(NOTE: Domestic day work for various employers is considered one job.)*

087 _____ *(Number)*

3. *(Omit for self-employed and unpaid family workers)* **How much did you earn last week from your job(s)?** *(Nearest dollar)*

088 $ ——————.00

4a. On your present job do you usually go to the same address to start each day's work? a.

089 1 ☐ Yes – *SKIP to 5a*
2 ☐ No – *ASK 4b*

b. Do you report to a different address every time or what? b.

090 1 ☐ Different every time
2 ☐ Other – *Specify* ——— *SKIP to item 6a*

5a. Do you work within the city limits of *(name of this city)*? a.

092 1 ☐ Yes – *ASK 5b*
2 ☐ No – *SKIP to 6a*

b. What are the names of the two streets at the corner nearest to your place of work? b.

OFFICE USE ONLY
Intersection is:

093 1 ☐ In inner city sample area
2 ☐ Remainder of city

6a. On your present job how do you usually get from home to work? *(Mark all mentioned)* a.

094* 01 ☐ Bus
02 ☐ Trolley
03 ☐ Railroad
04 ☐ Subway or elevated railway
05 ☐ Taxi
06 ☐ Walk
07 ☐ Drive alone
08 ☐ Share driving (carpool)
09 ☐ Drive others
10 ☐ Ride with someone else – *ASK 6b*
11 ☐ Other means – *Specify* _____

b. *(For ride with someone else)* **Do you pay?** b.

096 1 ☐ Yes – **How much?**
2 ☐ No

097 ☐ Trip
098 ☐ Day
099 ☐ Week
100 ☐ Month
$ _____ *(Dollars)* . _____ *(Cents)*

7a. Do you use any other way at least once a week? a.

101 1 ☐ Yes – *ASK 7b*
2 ☐ No – *SKIP to 8*

b. What do you use? *(Mark all ways mentioned)* b.

102* 01 ☐ Bus
02 ☐ Trolley
03 ☐ Railroad
04 ☐ Subway or elevated railway
05 ☐ Taxi
06 ☐ Walk
07 ☐ Drive alone
08 ☐ Share driving (carpool)
09 ☐ Drive others
10 ☐ Ride with someone else – *ASK 7c*
11 ☐ Other means – *Specify* _____

c. *(For ride with someone else)* **Do you pay?** c.

104 1 ☐ Yes – **How much?**
2 ☐ No

105 ☐ Trip
106 ☐ Day
107 ☐ Week
108 ☐ Month
$ _____ *(Dollars)* . _____ *(Cents)*

8. *If public transportation (categories 1–5) in items 6a or 7b –* **What is the total cost of the public transportation used for the one-way trip to work by** *(Name means used)* **. . .?**

109 1 ☐ $.00–.24
2 ☐ .25–.49
3 ☐ .50–.74
4 ☐ .75–.99
5 ☐ $1.00–1.24
6 ☐ 1.25–1.49
7 ☐ 1.50–or more
8 ☐ Don't know

9. On your present job, how long does it usually take to get from home to work?

111 _____ Minutes

10. What time do you usually get to work?

112 ☐ a.m.
113 ☐ p.m.
_____ *(Hour)* : _____ *(Minute)* – *SKIP to Section D*

SECTION B.2 – For Persons in Labor Force Group II – (looking, waiting or on layoff)

1a. Now I have some questions about how you would get to work. Do you have a license to drive a car? . . . . . a. 114

1 ☐ Yes – *ASK 1b*
2 ☐ No – *SKIP to 2a*

b. Is there a car you could drive to work every day? . . . . . b.

3 ☐ Yes
4 ☐ No

2a. Is there public transportation within ten minutes walk of here that goes to a place where you have looked for work? . . . . . a. 115

1 ☐ Yes – *ASK 2b*
2 ☐ No – *SKIP to 3*

b. What kind of public transportation is that? . . . . . b.

Stop or station
3 ☐ Bus
4 ☐ Trolley
5 ☐ Railroad
6 ☐ Subway or elevated railway
7 ☐ Taxi stand

SKIP to Section D

3. About how many minutes does it take you to walk to the place where public transportation stops? 117

_____ Minutes

0 ☐ No public transportation within walking distance

SKIP to Section D

Notes

FORM CES-2 (3-17-71)

SECTION C – For Persons in Group III *(Omit if respondent is 65 or older)*

1a. Do you want a regular job now, either full or part time?

123
1 Yes
2 Maybe, it depends
If "Yes" or "Maybe, it depends," ASK 1b and 1c
3 No – *ASK 1d and 1e*

1b. From the list of reasons that I am now going to read to you, please tell me which you would consider as reasons why you are not looking for work now.

(If 60–64 years old)	*(If under 25 years old)*	*(If a woman with other family members in hhld.)*				*(Omit if 25–49 years old)*			*(Mark if mentioned)*
1. Retirement	2. You are in school or training or waiting to start school	3. Family responsibilities	4. Problems with your health	5. You looked but couldn't find work	6. Transportation	7. Employers think too young (too old)	8. Lack of experience, education, or skill	9. Any other reason	10. Don't want to work
124	125	126	127	128	129	130	131	132	133
1 Yes – *End questions*	1 Yes	1 Yes – *Fill Part* A	1 Yes – *Fill Part* B	1 Yes – *Fill Part* C	1 Yes – *Fill Part* D	1 Yes – *Fill Part* E	1 Yes – *Fill Part* F	1 Yes *Specify*	1 *End questions*
2 No	2 No	2 No	2 No	2 No	2 No	2 No	2 No	2 No	

IF "NO" FOR ALL COLUMNS 1 THROUGH 9, END QUESTIONS

Is the school or training full time?
3 Yes
4 No – *End questions*

1c. *(If more than one "Yes" in 1–9 above)* **You told me that the reasons you are not looking for work include** *(Read all).* **Which of these is the MAIN reason?**

134 | 3 | 4 | 5 | 6 | 7 | 8 | 9

1d. From the list of reasons that I am now going to read to you, please tell me which you would consider as reasons for you not wanting to work now.

(If 60–64 years old)	*(If under 25 years old)*	*(If a woman with other family members in hhld.)*				*(Omit if 25–49 years old)*			*(Mark if mentioned)*
1. Retirement	2. You are in school or training or waiting to start school	3. Family responsibilities	4. Problems with your health	5. You looked but couldn't find work	6. Transportation	7. Employers think too young (too old)	8. Lack of experience, education, or skill	9. Any other reason	10. Don't want to work
		135	136	137	138	139	140	141	142
		1 Yes	1 Yes	1 Yes	1 Yes	1 Yes	1 Yes	1 Yes *Specify*	1 *End questions*
		2 No	2 No	2 No	2 No	2 No	2 No	2 No	
		If you didn't have this responsibility, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	
143	144	145	146	147	148	149	150	151	
1 Yes – *End questions*	1 Yes	1 Yes – *Fill Part* A	1 Yes – *Fill Part* B	1 Yes – *Fill Part* C	1 Yes – *Fill Part* D	1 Yes – *Fill Part* E	1 Yes – *Fill Part* F	1 Yes	
2 No	2 No	2 No	2 No	2 No	2 No	2 No	2 No	2 No	

IF "NO" FOR ALL COLUMNS 1 THROUGH 9, END QUESTIONS

Is the school or training full time?
3 Yes
4 No – *End questions*

1e. *(If more than one "Yes" in 1–9 above)* **You told me that the reasons you do not want to work include** *(Read each).* **Which of these is the MAIN reason?**

152 | 3 | 4 | 5 | 6 | 7 | 8 | 9

SECTION C – Continued

A FAMILY RESPONSIBILITIES

2a. What are your family responsibilities? *(Mark all that apply)* — a. — 153

1 ☐ Child care – *ASK 2b*
2 ☐ Care of husband or wife
3 ☐ Keeping house
4 ☐ Care of other relatives
5 ☐ Other – *Specify* → _____

SKIP to 3

b. What are your problems in arranging for child care? *(Mark all that apply)* — b. — 154

1 ☐ Want to care for children myself or child care is no problem – *END QUESTIONS*
2 ☐ Can't find anyone at price I can pay
3 ☐ Can't find anyone at any price
4 ☐ Don't trust baby-sitters
5 ☐ Never really tried to find child care
6 ☐ Other – *Specify* → _____

c. Is there a child care center available in your neighborhood? — c. — 155

1 ☐ Yes – *ASK 2d*
2 ☐ No or don't know – *SKIP to 2e*

d. Is there some reason why you can't use it? — d. — 156 ☐☐

_____
_____

SKIP to 3

e. If a child care center were made available would you use it? — e. — 157

1 ☐ Yes – *SKIP to 3*
2 ☐ No – *ASK 2f*
3 ☐ It depends – *ASK 2g*

f. Any particular reason why you would not use the child care center? *(Verbatim)* — f. — 158 ☐☐

_____
_____

SKIP to 3

g. On what does your use of the child care center depend? *(Verbatim)* — g. — 159 ☐☐

_____
_____

3. *(ASK for married women with husband a household member)* **How does your husband feel about your going to work?** *(Verbatim)* — 160 ☐☐

_____
_____

B HEALTH PROBLEMS

4a. What type of health problems do you have? (For example: heart condition, back trouble, etc.) — a. — 161 ☐☐☐☐

_____

99 ☐ Pregnancy – *SKIP to next reason*

b. Have you been under a doctor's care for this disability or illness? — b. — 162

1 ☐ Yes
2 ☐ No

c. How long have you had the disability or illness? — c.

3 ☐ Always
4 ☐ Less than 1 month
5 ☐ 1–5 months
6 ☐ 6–11 months
7 ☐ 12 months or longer

d. How long do you expect it to last – less than 6 months or 6 months or more? — d. — 163

1 ☐ Less than 6 months – *SKIP to next reason*
2 ☐ 6 months or more
3 ☐ Don't know

e. Would you be able to work if you had special arrangements or help? — e.

4 ☐ Yes – *ASK 4f*
5 ☐ No
6 ☐ Don't need help

SKIP to next reason

f. What kind of special arrangements or help? — f. — 164

(Mark all ways mentioned)

1 ☐ Doctor's care
2 ☐ Help in getting to and from work
3 ☐ An operation
4 ☐ Ramps, elevators, or special equipment at work
5 ☐ Rest periods, part-time work, light work
6 ☐ Eyeglasses, hearing aid, tooth repair
7 ☐ Crutches, braces, artificial limb
8 ☐ Other – *Specify* _____

GO to 4g

FORM CES-3 (3-17-70)

SECTION C – Continued

B HEALTH PROBLEMS – Continued

4g. When could you start to work if you had this assistance? . . . . . g.

166 1 ☐ Immediately
2 ☐ Less than 1 month
3 ☐ 1–6 months
4 ☐ More than 6 months
5 ☐ Other – *Specify* _____

C LOOKED BUT COULDN'T FIND WORK

5a. When did you last look for a job? . . . . . a.

167 1 ☐ During the past 12 months – *SKIP to 6*
2 ☐ 1 up to 2 years ago
3 ☐ 2 up to 3 years ago
4 ☐ 3 up to 4 years ago
5 ☐ 4 up to 5 years ago
6 ☐ 5 or more years ago

b. At that time how many weeks did you spend looking for a job? b.

168 _____ Weeks

c. How did you go about looking for a job? *(Mark all that apply)* c.

Anything else?

169 1 ☐ Checked with State Employment Service
2 ☐ Applied directly to an employer
3 ☐ Asked friends or relatives
4 ☐ Checked newspapers
5 ☐ Registered with union
6 ☐ Checked with private employment agency
7 ☐ Checked with other organization such as Urban League, welfare agencies and community action groups
8 ☐ Went to special streets or places
9 ☐ Other way – *Specify* _____

6. Why did you stop looking for work at that time?

171 ☐☐☐

_____

7. What kinds of jobs did you look for?

172 ☐☐☐ Occupation

8. Do you think you needed more training in order to get those kinds of jobs?

173 1 ☐ Yes
2 ☐ No

9. *(SKIP if "During past 12 months" marked in 5a)*

(Mark only ***one*** *box and* ***one*** *amount)*

a. What is the lowest pay you would accept? *(If amount given per hour, record dollars and cents; otherwise, round to the nearest dollar.)* . . . . . a.

174 ☐ Hour . . . . $_____ . _____ *(Dollars) (Cents)*

OR

175 ☐ Day
176 ☐ Week
177 ☐ Month
178 ☐ Year

$_____ .00

b. Did you ever turn down a job because you couldn't get the pay you wanted? . . . . . b.

179 1 ☐ Yes
2 ☐ No

10a. Have you ever applied for a job training program? . . . . . a.

180 1 ☐ Yes – *ASK 10b*
2 ☐ No – *SKIP to 10e*

b. What kind of job were you training for? . . . . . b.

181 ☐☐☐ Occupation

c. Did you complete it? . . . . . c.

182 1 ☐ Yes – *SKIP to 11a*
2 ☐ No, never started
3 ☐ No, dropped out
ASK 10d

d. Is there any particular reason? *(Verbatim)* . . . . . d.

183 ☐☐

_____

_____

SKIP to 11a

e. Any particular reason why you didn't apply? *(Verbatim)* . . . . . e.

184 ☐☐

_____

SECTION C – Continued

C LOOKED BUT COULDN'T FIND WORK – Continued

11a. If additional training were made available would you take it? a. 185
1 ☐ Yes – *SKIP to 12a*
2 ☐ It depends – *ASK 11b*
3 ☐ No – *SKIP to 12a*

b. What does it depend on? *(Mark all that apply)* b.
4 ☐ Pay during training
5 ☐ Type of job being trained for
6 ☐ Length of training period
7 ☐ Other – *Specify* _____
GO to 12a

12a. If a job were made available, would you take it? a. 186
1 ☐ Yes – *SKIP to next reason*
2 ☐ It depends – *ASK 12b*
3 ☐ No – *ASK 12c*

b. What does it depend on? *(Mark all that apply)* b.
4 ☐ Pay
5 ☐ Type of job
6 ☐ Working conditions
7 ☐ Location of job
8 ☐ Other – *Specify* _____
SKIP to next reason

c. Is there any particular reason why not? *(Verbatim)* c. 187 ☐☐

D TRANSPORTATION PROBLEMS

13a. Do you know of job openings that you would be willing to take if you could get transportation? a. 188
1 ☐ Yes – *ASK 13b*
2 ☐ No – *SKIP to next reason*

b. How many miles away is the nearest job that you would take? b.
189 _____ Miles

c. What is your problem in getting there? c. 190 ☐☐

E AGE

14a. Have you been told by an employer that you were too old (young)? a. 191
1 ☐ Yes – *ASK 14b*
2 ☐ No – *SKIP to next reason*

b. Do you think you are too old (too young) to take a job? b.
3 ☐ Yes – *SKIP to next reason*
4 ☐ No – *ASK 14c*

c. What kind of job was it that you applied for? c. 192 ☐☐☐ Occupation

F LACK OF EXPERIENCE, EDUCATION, OR SKILL

15a. Would you be willing to go back to school to get more experience, education, or skill? a. 193
1 ☐ Yes – *ASK 15b*
2 ☐ No – *END QUESTIONS*

b. What do you want; basic education, job training, or something else? b.
4 ☐ Basic education – only
5 ☐ Job training – only
6 ☐ Something else – only
7 ☐ Basic education and job training
8 ☐ Basic education and something else
9 ☐ Job training and something else
0 ☐ All three kinds

Notes

FORM CES-3 (3-17-70)

SECTION D – For Persons in Labor Force Groups I and II *(Omit if respondent is 65 years old or older)*

1. *(If under 25)* **Are you now enrolled in school or expecting to return to school within 3 months?**

194 1 ☐ Yes – *End questions*
2 ☐ No

2. **People have many different problems in finding and taking a job –**

(If Labor Force Group I) **In your own case, do any of these problems directly affect your holding a job or finding a better one?** *(Read list)*

OR

(If Labor Force Group II) **In your own case, are any of these a problem in finding a job?** *(Read list)*

a. *(Women with own children under 14 years old)* **Family responsibilities or arranging for the care of your children?** . . . **a.**

195 1 ☐ Yes – *GO to* [A]
2 ☐ No

b. Problems with your health? . . . . . **b.**

3 ☐ Yes – *GO to* [B]
4 ☐ No

c. Lack of experience, education, or skill? . . . . . **c.**

5 ☐ Yes – *GO to* [C]
6 ☐ No

d. *(Omit if 25–49 years old)* **Employers think you are too young (too old)?** . . . . . **d.**

7 ☐ Yes
8 ☐ No

e. Do you have any other such problems? . . . . . **e.**

196 1 ☐ Yes → 2 ☐ No

What is it? →

197 ☐☐

[A] FAMILY RESPONSIBILITIES

3. What are your family responsibilities? *(Mark all that apply)*

198 1 ☐ Child care – *ASK 4*
2 ☐ Care of husband
3 ☐ Keeping house
4 ☐ Care of other relatives
5 ☐ Other – *Specify* →

If child care not marked, SKIP to next problem marked

_____

---

4. What are your problems in arranging for child care? *(Mark all that apply)*

199 1 ☐ Want to care for children myself, or child care is no problem – *SKIP to next problem*
2 ☐ Can't find anyone at price I can pay
3 ☐ Can't find anyone at any price
4 ☐ Don't trust baby-sitters
5 ☐ Never really tried to find child care
6 ☐ Other – *Specify* _____

---

5. Is there a child care center available in your neighborhood (area)?

200 1 ☐ Yes – *ASK 6*
2 ☐ No or don't know – *SKIP to 8*

6. Do you use it?

3 ☐ Yes – *SKIP to next problem*
4 ☐ No

7. Is there some reason why you can't use it?

201 ☐☐

_____

_____

---

8. If a child care center were made available, would you use it?

202 1 ☐ Yes – *SKIP to next problem*
2 ☐ No – *ASK 9*
3 ☐ It depends – *ASK 10*

9. Any particular reason why you would not use the child care center? *(Verbatim)*

203 ☐☐

_____

_____

---

10. On what does your use of the child care center depend? *(Verbatim)*

204 ☐☐

_____

_____

SECTION D – For Persons in Labor Force Group I and II – Continued

B HEALTH PROBLEMS — 205 ☐☐☐☐

11. What type of health problems do you have?
(For example: heart condition, back trouble, etc.)

99 ☐ Pregnancy – *SKIP to next problem*

12. Have you been under a doctor's care for this disability or illness? — 206

1 ☐ Yes
2 ☐ No

13. How long have you had the disability or illness?

3 ☐ Always
4 ☐ Less than 1 month
5 ☐ 1–5 months
6 ☐ 6–11 months
7 ☐ 12 months

14. How long do you expect it to last – less than 6 months or 6 months or more? — 207

1 ☐ Less than 6 months – *SKIP to next problem*
2 ☐ 6 months or more
3 ☐ Don't know

C LACK OF EXPERIENCE, EDUCATION, OR SKILL

15a. Would you be willing to go back to school to overcome the lack of – experience, education, skill? . . . . . a. — 208
(If Yes) – **Full time or part time?**

1 ☐ Yes – Full time } *ASK 15b*
2 ☐ Yes – Part time }
3 ☐ No – *End questions*

b. Which do you prefer; basic education, job training, or something else? . . . . . b.

4 ☐ Basic education only
5 ☐ Job training only
6 ☐ Something else
7 ☐ Basic education and job training
8 ☐ Basic education and something else
9 ☐ Job training and something else
0 ☐ All three kinds

Notes

FORM CES-3 (3-17-70)

APPENDIX D

Excerpt From

Handbook on Employment Security

Job Market Research Methods —

Area Skill Survey

November 1965

Reprinted April 1971

Schedule for (Name) Area Skill Survey, Part I

Budget Bureau No. 44-R1285
Expiration date: 12/31/66

Employer Name_____
Address _____
_____ (Zip Code)
SIC____ EI____ Sampling Group_____

(This box to be filled in by State agency. Please change name or address if incorrect.)

State Agency Name,
Address,
and
Zip Code

Information reported on this form is strictly confidential and will not be revealed to any unauthorized person nor published in such a manner that data relating to individual companies can be identified.

BEFORE ENTERING THE REQUESTED INFORMATION, PLEASE READ THE INSTRUCTIONS ATTACHED TO THIS SCHEDULE

A. Number of employees on all payrolls for the pay period including the 12th of (month), 19__: _____
B. Number of employees you expect to have - 2 years hence (use date): _____
- 5 years hence (use date): _____
C. Please furnish below the data requested for each occupation in columns (3) through (8)

DOT Code	Occupation	Current Employment	Expected Employment in:*		No. of Workers Needed for Replacement Next Year 1/	Workers Completing Company Training Programs or Promoted into Occupation in: *2/	
			2 Years	5 Years		2 Years	5 Years
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	PROFESSIONAL						
0-48	Draftsman						
0-50	Laboratory Technician						
0-56	Photographer						
	CLERICAL						
1-01	Bookkeeper						
1-37	Typist						
1-36	Statistical Clerk						
1-25	Office Machine Operator						
	ETC.						

Signature_____ Title_____ Date_____
(Firm representative responsible for this report)

* State agencies should put actual dates in columns 4, 5, 7, and 8 covering 2 and 5 years hence.

1/ Replacement needs are workers needed to replace those who are promoted to another occupation and those who leave the labor force for reasons such as death, retirement, disability, or entry into the Armed Forces. Please enter in this column the number of such replacements which you expect will occur in the next 12 months. If this is not feasible, enter figure for those replacements occurring in the past 12 months. Do not include workers who leave to seek or accept other jobs, or workers separated from your establishment because of reduction in force, inadequate performance on the job, or misconduct.

2/ Combine the number of workers expected to complete company training programs and the number of workers expected to be promoted into the occupation from other jobs in the company in the next 2 and 5 years and enter in the appropriate columns.

Note to State Agency:
These instructions should be attached to the employer schedule

INSTRUCTIONS FOR PREPARING PART I OF THE SCHEDULE FOR AREA SKILL SURVEY

For the purpose of this survey, please assume the following conditions when furnishing the requested information.

1. Qualified workers will be available to meet any anticipated employment needs.

2. The present long-term trend of economic growth of the United States will continue with no major setbacks for the next few years.

3. Scientific and technological advances will continue, affecting industrial production methods, manpower requirements, and consumption patterns.

4. The present-day normal workweek at your firm will continue through the forecast period.

5. Your current plans for plant expansion or modernization will materialize according to schedule.

SECTION A. Number of employees on all payrolls for the period including the 12th of (month). Enter the total number of workers of all kinds on all payrolls in this plant, facility, or establishment, covering the pay period including the 12th of the month indicated.

SECTION B. Number of employees you expect to have. Enter here the total number of workers you expect to employ in this plant, facility, or establishment 2 and 5 years hence. Please refer to the assumptions above in making your estimates.

SECTION C. Occupations. The occupations listed are those which have been identified as of major importance at present in (area). The listing may not include all of the occupations in your establishment and may include occupations which you do not use or plan to use in the future. Some of the occupations in your company may be included here under a title different from that used in your firm. Please study the list and definitions carefully before making any entries. If there are occupations in your plant not shown in the listing which you expect will have major growth or decline, please enter them in lines provided at the end of each occupational category. (State agency, please note: If "open-end" or "unlisted" questionnaire is used, modify preceding paragraph accordingly.)

Column (3) Current Employment. Enter in column 3 the number of workers (excluding trainees) you now employ in each occupation listed. If you have no employees in one or more of the listed occupations, enter "none" in column 3.

Columns (4) and (5), Required Employment in 2 and 5 Years. For each occupation, enter your estimates of the total number of workers you will require 2 and 5 years from now. Please refer to the assumptions at the beginning of these instructions in preparing your estimates of future employment. The estimates should not include workers needed as replacements of prospective losses due to normal turnover or to attrition (retirements, withdrawals for military service, quits, deaths, etc.). Illustration: If you employ 10 workers in the occupation now and expect to employ 14 workers in the occupation 2 years hence, enter 14 in column 4.

Column (6) Number of Workers Needed for Replacements Next Year. Replacement needs are workers needed to replace those who leave the labor force for reasons such as death, retirement, disability, or entry into the Armed Forces. Therefore, for each occupation, please enter the number of workers needed during the next year to replace those workers who will leave the occupation because of promotion, retirement, death, disability, withdrawal for military service, etc.

In the event that the coming year will not be typical for your firm in this respect, or that you are unable to make a judgment for the coming year, please indicate the extent of replacement needs which occurred during the past 12 months, or those which you judge as "average" for a 12-month period for each occupation.

Columns (7) and (8) Number of Workers Completing Company Training Programs or Promoted into the Occupation in 2 and 5 Years. Enter in the appropriate columns the number of workers expected to complete plant training programs conducted by your establishment for each occupation in the next 2 and 5 years, plus the number of workers in your employ which you expect to promote into that occupation from other jobs in the company in the next 2 and 5 years.

If you have any questions about the completion of this schedule, please phone (name) at (phone). Please return the completed schedule by (date) to the (name of agency). (address). A return stamped envelope is enclosed for your convenience.